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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

[65]

FIBERS A

Natural fibers A 1

Analysis of number of fibers in cross-sections of sliver, roving, yarn. A. M. Vanden Abeele. *Bull. de l'Institut Textile 22,* 61-90 (Dec. 1950); *in French.*

The aim of the first part of the present paper is to explain the principles underlying the application made of the classical schemes of repeated trials (Bernouilli, Poisson, Lexis and Coolidge) and to establish the properties or a generalization of them in which the author considers a purely random variation of the proportion of balls in the urns.

As an application of such a generalization regarding the variance of the number of fibers per cross section in a particular length of yarn, roving or sliver, the second part concludes that in any case, any component of variance additional to $m(1-p_0)$ may be considered as being due to one or another systematic influences.

Cotton men take a look at cotton problems. Anon. *Textile World 101,* 118-119 (Jan. 1951).

Cotton problems were discussed at the Seventh Spinner-Breeder Conference at El Paso, Texas, and suggestions were made on practical measures that would help spinners and breeders. More one-variety areas, better labeling of cotton, gin description of fiber, fiber specification by mills, cotton-merchant cooperation, and better ginning practices were some of the improvements sought. Of special interest was the progress made by farmers in one-variety production. But only a few communities were said to be planting one-variety cotton, and lint certification from those areas identified seed, variety, and area of growth. Grade, fiber characteristics, and length should also be labelled on the bale.

Density determination of cellulose fibers. P. H. Hermans & D. Vermass. *J. of Polymer Science 5,* 734-35 (Dec. 1950).

[66]

Attention is drawn to a source of error encountered in the determination of the density of cellulose fibers by the flotation method in CCl_3. The acid contamination is caused by the small amount of phosphorous trioxide found in the commercial grade phosphorous pentoxide.

Existence of tubes overlying wool fiber scales. E. H. Mercer. *Melliand Textilber. 31,* 694-5 (Oct. 1950); *in German.*

The thin walled tubes, which can be isolated from wool and hair by various procedures, may lie either above or below the scale layer in the original fiber. It is proved that the tubes do in fact overlie the scales by coating the outside surface of the fiber with gold metal before separating the tubes. When the tubes are isolated from such fibers, by treating them with phenol and digesting with trypsin, they are found to be still coated with the metal. Thus, it is clear that they must have formed the outer surface of the fiber.

Handling short bast fibers in cotton and rayon mills. R. Hunlick. *Kunstseide & Zellwolle 28,* 98-100 (March, 1950); *in German.*

Some mills obtain good results in working short bast fibers, while others experience many difficulties. These difficulties usually originate in retting, grinding, or breaking. Mixtures of these fibers with cotton and rayon are possible. Blend percentages for a given yarn number are given.

Glass yarns. Harry E. Mahler. *Textile World 101,* 110-111 (Jan. 1951).

Five points are emphasized in the handling of glass yarns during warping, winding, and weaving: good equipment, uniform tension, smooth finishes on surfaces of metals touching the yarn, cleanliness, and proper training of operatives. The proper equipment, packages, and other techniques for glass-yarn processing are outlined.

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Mill management and wool oils. W. A. Berman. *Am. Wool Cotton Reptr. 64,* 10-12, 44-5 (Dec. 28, 1950).

Marketing of wool oils has become a specialized service in fiber lubrication which will result in substantial savings and finer fabrics. This specialized service consists in: (1) laboratory work which permits the development, manufacture and servicing of good wool oils, (2) analysis of the processes in each mill to determine the best oil for that particular mill and the most efficient method and rate of application, (3) periodic reviews of application procedures and the performance of the oil, and (4) a formal report to the management of each mill covering the specialist's analysis of the mill operations and his recommendations, and, subsequently, similar reports covering his periodic reviews of the efficiency of the fiber lubrication procedures. A chart to aid in the choices of the most economical wool oil for any woolen mill operation and a sample engineering report of typical wool oil problems as prepared by a leading wool oil supplier are presented to supplement the information given in this article on the scientific approach to the application and selection of wool oils.

Observations on the properties of wool with particular reference to scouring. A. C. Goodings. *Can. Textile J. 68,* 48-52, 54 (Jan. 5, 1951).

Some of the more interesting experimental facts are accumulated in a study of the scouring of wool fabrics, and the story as a whole, including conclusive reasons for the observed behavior, is as yet incomplete. The results in various directions would indicate, however, that the observed behavior of wool in the removal of oil by scouring is not primarily attributable to external microscopic physical features of the fiber.

If chemical composition and molecular structure are involved, the question arised, pertinent to a surface action, of the differences between wool and silk. The influence which prior treatment can have on the behavior of wool itself in connection with removal of mineral oil is very striking, and clearly indicates irregularities which may be encountered in scouring experiments on wool fabrics of unknown origin. It is also clear that certain precautions need to be taken in the selection of wool fabric where this is to be used in detergency studies.

The structure of wool in all its detail is not yet known, and the full implications of the structure even so far as we do know it are not as yet thoroughly understood.

Some attempt has been made here to indicate how

a study of other fibers and a comparison of their properties and behavior with wool can help us to achieve a better understanding of that more complex fiber.

Moisture sorption in cellulosic fibers and effects of drying. Anon. *Brit. Rayon & Silk J. 27* 59 (Dec. 1950).

The anisotropic structure of cellulosic fiber is similar to that of wood. The comparison between fibers and wood is well extended by this report, showing that fibers have long chain molecules of which the primary linkages are very strong while transverse linkages are comparatively weak. The effects of moisture and drying are said to be analogous.

Selection of linen. G. Grillot. *Revue "Oleagineux" 5,* 213-19 (April, 1950); *in French.*

The author reviews historically the matter of the selection of linen seed and fiber. *Linum usitatissimum* is said to be a unique species, suitable for fiber and oil production. Bibliography.

Synthetic textile lubricants. Anon. *Am. Wool Cotton Reptr. 65,* 15-16 (Jan. 4, 1951).

Ucon synthetic lubricants, water-soluble and oils developed by Carbide & Carbon Chemicals, are said to be chemically stable, lack rancidity, non-staining, non-corrosive, and non-toxic. Three types of H-6, H-15, and L-11 have been found to be outstanding fiber lubricants for use on worsted and woolen systems. They can be completely removed with minimum scouring; reduce costs of scouring; eliminate back-washing prior to dyeing; simplify preparation for applying to wool; and eliminate "resists" or uneven results from residual lubricant in subsequent operations such as dyeing and finishing.

Treatment of wool to increase its harshness and fullness and to decrease its luster. Stuart E. Swanson (to Bigelow-Sanford Carpet Co. Inc.) USP 2 534 315, Dec. 19, 1950.

The process of imparting to B. A.-type wool the properties of harshness, plumpness, and fullness requisite for conversion of the wool by standard procedures into pile fabric floor covering and for decreasing its lustre which comprises wetting the wool with an aqueous solution having a pH value between 3.0 and 4.5 and consisting essentially of 2% to 8% by weight of the wool of an aluminum sulfate salt selected from the class consisting of aluminum sulfate, sodium aluminum sulfate and ammonium aluminum sulfate.

The merino breed in France. J. Lahaye. *L'Infor-*

mation Ovine 28, 12-14 (April, 1950); *in French.*

A history of an important source of wool in France. Main features of the merinos of Rambouillet are reviewed.

Treatment of wool to increase its harshness and decrease its luster. Stuart E. Swanson (to Bigelow-Sanford Carpet Co. Inc.) USP 2 534 316, Dec. 19, 1950.

The process for imparting to B. A.-type wool the property of harshness requisite for conversion of the wool by standard procedures into pile fabric floor covering, and for decreasing its lustre, which consists essentially in wetting the wool with a solution having a pH between 7.0 and 12.0 and containing a barium compound selected from the class consisting of barium oxide and barium hydroxide, and thereafter treating the wool with sulfuric acid.

Artificial fibers A 2

Apparatus for producing fiber staples. Arthur J. P. Care. USP 2 532 660, Dec. 5, 1950.

Apparatus for the production of fiber staples comprising in combination a hammer mill for separating dried pulp into individual fiber staples, a closed, elongated collection chamber for receiving individual fiber staples from the hammer mill, the collection chamber having an air outlet closed by porous material, a conduit extending from the hammer mill a short distance into the collection chamber, a finely screened outlet for the collection chamber in alignment with the conduit, suction means for drawing a mixture of air and finely divided particles through the screened outlet, blower means adapted to create an air current for maintaining the fibers in the hammer mill in air suspension, the air current being effective for conveying sized fibers from the hammer mill to the collection chamber in a turbulent air suspension and for maintaining individual fibers in the collection chamber in an air suspension.

Behavior of polyurethane fibers. E. Elod & H. G. Frohlich. *Melliand Textilber 31,* 759-62 (Nov. 1950); *in German.*

After having examined the absorption of acids of varying strength by polyurethane fiber and its capability of binding alkali, the authors find that it behaves in an analogous way to protein fiber. It was further shown that polyurethane fiber can be successfully used as model fiber for the purpose of examining separately the behavior of the peptide and the carbonamide group. Its

behavior in the dyebath and the phenomena during the steaming process were studied. It is believed that the increased absorption of dyestuff caused by steaming is based on a decarboxylizing action.

Filament tester. John B. Steiding (to Celanese Corp. of Am.) USP 2 533 332, Dec. 12, 1950.

In a device for determining the linear response of a tensioned filimentary material when subporting member, a bracket mounted on the supjected to physical and chemical treatments, a supporting member and adjustable therealong, means on the bracket for holding one end of a specimen of filamentary material, a pair of parallel cooperating brackets mounted on the supporting member, a counterweighted lever arm pivotally supported at one end and mounted between the latter brackets, means for anchoring the other end of the speciman to the lever arm, a rack on the lever arm, a pinion cooperating with the rack and indicating means operatively connected to the pinion, the construction and arrangement being such that the lever arm is responsive to the linear changes of the specimen when under treatment and the indicating means giving a visible indication of the changes.

Manufacture and properties of Perlon. H. Boehringer & E. Schuller. *Kunstseide & Zellowolle 28,* 113-116 (April, 1950); *in German.*

The manufacture and essential properties of Perlon—Germany's equivalent of nylon—are reviewed briefly. Formulas, and three tables comparing Perlon's physical properties with six other fibers.

Nylon immunized against dyes by sulfurized phenols. Walter Flugel, Hans M. Hemmi, Kurt Hofer, & Adam Mikula (to Sandoz Ltd.) USP 2 533 100, Dec. 5, 1950.

A process for modifying the tinctorial properties of textile material manufactured from synthetic linear polyamides, which comprises the step of treating such material for about 10 to 30 minutes at 90 to 100° C. with an aqueous alkaline solution of a water-soluble member of the group consisting of sulfurized phenols containing from 26 to 40% of sulfur attached to the molecule and the metal salts, metal complexes and reduction products thereof.

New synthetic filament — Rilsan. R. Dumon. *L'Industrie Textile 77,* 106-8 (March, 1950); *in French.*

Rilsan is made from the castor bean. Its physical properties are given. It resists oils, dilute acids,

and alcohols, and has good abrasion resistance. Two tables, one photograph.

Plan to double dynel output. Anon. *Am. Wool Cotton Reptr. 64,* 9-10, 43 (Dec. 21, 1950).

A recent demonstration in New York of dynel's many uses for consumer consumption showed the excellent flame resistance, chemical resistance, and stability characteristics of dynel fabrics. Blankets, certain types of work-clothing, men's half-hose, blended-yarn suiting fabrics, drapery and upholstery fabrics, an imitation pile fabric, etc., using dynel fibers are being produced and many of them soon will be available for commercial distribution. Experimentation is still being conducted on dynel fibers and to satisfy this demand Carbide & Carbon has announced a new plant which will be in operation by the middle of 1951 to double its production of dynel.

Production of insolubilized protein artificial filamentary products. Robin H. K. Thompson & Walter A. Caldwell (to Imperial Chemical Industries Ltd.) USP 2 532 350, Dec. 5, 1950.

A method for insolubilizing artificial filamentary products obtained by the spinning of aqueous alkaline solutions of vegetable seed globulins into acidified saline coagulating solutions which comprises treating the filamentary products having a solubility substantially the same as that immediately after coagulation at a temperature between 20° to 40° C. while in an untensioned condition in an aqueous bath comprising about 1 to 3 per cent formaldehyde and saturated with sodium chloride having a pH between 4 to 6, and immediately thereafter, treating the resulting products in untensioned condition at a temperature between 35° and 50° C. in an aqueous insolubilizing solution comprising formaldehyde and at least 30 parts of sodium chloride per 100 parts of water by weight having a pH below 1.

Staple fiber cutter. Harry E. New (to American Viscose Corp.) USP 2 532 458, Dec. 5, 1950.

Cutting apparatus comprising a rotatable disc-like shear member having a channel for guiding material to be cut outwardly through the disc periphery, a knife having a cutting edge adjacent the periphery of the shear member for cutting the material, a support for the knife, means for mounting the support for rotation on the axis of the shear member, means for rotating the shear member, a stationary frame member, and shock-absorbing means interconnecting the support with the frame member for permitting a limited swinging motion of the support.

Suggestions for processing dynel fiber on cotton and wool systems. R. W. Gaines, *Textile Industries 115,* 99 (Jan. 1951).

In an abstract of a paper presented before the AATT, it is noted that only slight adjustments need be made to successfully process dynel on the cotton, wool and Bradford systems. Strength, natural crimp, and irregular shaped cross section make dynel an easily spinnable fiber. Suggestions for processing dynel are presented.

Vegetable protein fibers. Anon. *Revue "Oleagineux" 5,* 259 (April, 1950); *in French.*

The author estimates that peanut cake contains 50% of protein suitable for manufacture into fiber such as "Lanital". Brief description of procedures are given.

YARN PRODUCTION B

Fiber preparation B 1

Alabama mill carding practices. *Textile Industries 114,* 109, 111, 113 (Dec. 1950).

More information from mill installations of pneumatic rack controls on pickers came from mill reports before the Alabama Textile Operating Executives. Time required to doff pickers was reduced 42 percent at one mill, and production was increased 3.5 percent.

Operating the pneumatic rack control at 50 lb pressure, the mill reduced lap diameter from 16 to 14½ inches, or 9.4%. However, upon again using the full 10-inch diameter, the mill increased lap yardage from 52 to 58. Laps ran 11.5 percent longer on the card, and lap weight jumped from 47½ to 53 pounds. Amortization of the investment is expected in 50.5 weeks.

Labor savings from automatic ceiling cleaners were reported from the ability to clean the card room without stopping the machinery. In addition, 63 hours weekly of hand cleaning labor was said to be eliminated.

Card maintenance data from 14 mills showed that hours between card grindings varied from 160-504 hours; cards per grinder varied from 22-102, with some differences in miscellaneous tasks such as oiling; and the amount of time that cards were ground ranged from 3-16 hours.

Discussion on figuring blows per inch on picker beaters. *Textile Industries 115,* 161, 163, 165 (Jan. 1951).

In answer to a reader inquiry, a contributor gives 3 charts to facilitate the calculation of beats per inch on a Kitson or Saco-Lowell one process

picker with blending reserve. Regarding a question of whether the best work is performed on relatively thin or thick sheets of stock, the contributor states that from his experience it is essential to have as thick a sheet as possible. Also discussed is the difficulty of stating any hard and fast rule for determining the optimum number of beats per inch to secure the maximum amount of cleaning without fiber damage. Finally a high fan speed is recommended for pickers so as to produce a uniform, well-sheeted lap.

Evener for cotton pickers. T. S. Ramsdell. USP 2 532 330, Dec. 5, 1950.

See front section.

Picker lap tests. Earl Olsen. *Textile Industries 115,* 105-6 (Jan. 1951).

Picker lap characteristics are often carried through to the finished product; therefore, irregularities should be eliminated or prevented at this stage of manufacturing by obtaining information from picker lap tests. In testing picker laps, a lap completed while the technician observes the operation is selected. The feeding time and blending reserve stops and the cone belt position are recorded. After the test lap has been weighed and recorded, it is placed on a Saco-Lowell lap meter. The variations are weighed and plotted, and other factors including appearance, cotton distribution, opening, etc. are noted. By using the resulting information and test charts, the overseer may determine the number of yards per lap, amount of waste, condition of the brake mechanism, and other valuable information useful for efficient quality control of the pickers.

Carding and combing B 2

Detaching motion. John S. Dudley, Douglas and Carl D. Brandt, USP 2 536 754, Jan. 2, 1951.

A planetary detaching roll drive comprising a roll drive gear, a compound planet gear meshing therewith, a second compound gear meshing with the planet gear, a drive gear meshing with the second compound gear, and means for imparting orbital motion to the planet gear.

How to select drawing frame rolls. Arlington Boylston. *Rayon & Syn. Tex. 32,* 31-3 (Feb. 1951).

See front section.

Maintenance of woolen cards. 2. Wm. J. Crofts. *Textile Industries 115,* 131, 133, 135 (Jan. 1951).

Grinding of the wire on wool cards is necessary

to restore the sharp points and smooth level surface, and fancies need grinding to grind off the needle point that forms. In setting workers to the cylinders a No. 35 or No. 34 card gauge is more practical and economical; for average stocks a No. 26 card gauge is usually satisfactory; for coarser stocks a No. 24 gauge should be used; and for the fancy roll a No. 26 gauge is usually pushed up through and between the fancy and cylinder. A good rule to follow in stripping is to do as little stripping as possible and to keep the card clothing in good condition. Oiling bearings is another important point of preventative maintenance. Records should be kept of individual cards and periodic surveys should be made. These pointers and others are discussed in this second of two articles on maintenance of woolen cards.

Principles of carding and their application. G. Marshall. *J. Tex. Inst. 41,* P725-36 (Oct. 1950).

Describes the principal carding actions, shows what takes place at the carding points and then shows how knowledge thus acquired has led to the development of the existing carding machines.

Drafting and roving B 3

Bobbin gear assembly for roving frames. Robert Q. Hollingsworth (to Am. Engineering Corp.) USP 2 533 669, Dec. 12, 1950.

A bobbin gear assembly for roving frame bolsters comprising a sleeve member adapted for disposition as a bobbin seat on a bolster, a gear element carried on the sleeve member for driving connection to rotate the sleeve member on the bolster, and a second sleeve member assembled with the first sleeve member for relative rotation and thereby adapted for positioning and supporting the first sleeve member and gear element for free rotation on the bolster.

Combination clearer proves effective on drawing frames. *Textile Industries 115,* 167 (Jan. 1951).

An arrangement whereby a revolving back clearer is used in conjunction with an oscillating front roll clearer to maintain clean drawing rolls. These clearers are reported to operate from 9 to 18 shifts without cleaning.

Comments on care of bobbins. *Textile Industries 115,* 167, 169 (Jan. 1951).

Suggestions for prolonging the life of bobbins in the card room include: purchasing a good quality bobbin of correct size and checking the shipment of bobbins when received; teaching operators

how to put bobbins on frames after doffing so as not to damage them; and proper removal of roving from bobbins. The 3 ways of removing this roving are: (1) use of a bobbin cleaning machine, which is the fastest method; (2) cutting roving from bobbin by hand; and (3) twisting roving from bobbin by hand.

Mixing of colored fibers in continental drawing. P. P. Townend. *Textile Recorder 68,* 81-2 (Dec. 1950).

From tests on 64s white wool tops, an analysis is made to determine the effect of such factors as doublings, number of operations, and draft upon the perfection of mixing of wool fibers. The Continental system of drawing and spinning was used; fabrics were woven from the test groups; and ten experienced judges were asked to assess the uniformity of appearance of each group.

The author summarizes the practical results of the tests as follows: 1. An increase in draft or a decrease in the number of operations, using the same number of doublings, detracts from the efficient mixing of fibers. 2. An increase in the number of doublings, or an increase in the number of operations, with the same draft will improve the degree of mixing while single-end drawing cannot be tolerated so far as mixing is concerned. 3. Using the same number of operations, an increase in the number of doublings, or an increase in draft, from one to two ends results in much better mixing, but beyond that number of doublings it is doubtful whether any pronounced improvement in appearance is gained.

4. Assuming the same process of manufacture, streakiness is more apparent in fabric knitted from fine yarns than in fabric from coarse yarns.

Some causes of irregularity in worsted drawing and spinning. D. R. Cox & J. Ingham. *Fibre & Fabric 104,* 6, 8 (Jan. 13, 1951).

See front section.

Spinning B 4

Cotton system warping equipment. John C. Bodansky. *Textile Industries 115,* 113-20 (Jan. 1951).

If warping equipment is not kept in good operating condition, the entire production of a mill can be upset. A detailed discussion of the maintenance and operation of cotton system warping equipment as used with magazine type cone creels is presented. Included in the discussion are the following subjects: covering the drum on the warper with precautions for filament processing

and felt coverings; lubrication of warpers, their bearings, clocks, doffing mechanism, etc.; out of round warps; crooked beam journals; causes of uneven warp diameter; care of speed control mechanism; keeping lint off the motor; inspection of control equipment; stopping action; the combs, creel; tensions; stop motion; cleaning equipment; and threading the creel.

Cord. Camille Dreyfus. USP 2 532 395, Dec. 5, 1950.

A tire cord comprising a cabled structure containing two ends of plied yarn, one end of which comprises a cotton yarn plied with a steel filament, and the other end of which comprises a nylon yarn plied with a regenerative cellulose yarn.

Dispensing Holder for Yarn Packages and the Like. Ruelon Harward, USP 2 536 931 January 2, 1951.

A dispensing holder for packaged yarn or the like comprising a base, a standard fixed to and extending upwardly from the base, a package holder mounted on the standard to rotate about the axis thereof, said package holder including a wire bent to form an eye at one end encircling the standard at its lower end, an arm extending upwardly and inwardly extending arm extending from said supporting ear having a loop at its upper end encircling the standard adjacent its upper end, a further arm extending downwardly and outwardly from said loop terminating at its lower end in an outwardly extending ear for supporting another side of a yarn package, and a horizontally extending arm extending from said outwardly extending ear terminating in an eye encircling said first-named upwardly extending arm, a bracket removably supported at one end adjacent the upper end of the standard and extending radially therefrom and a yarn guide depending from the end of the bracket remote from the standard through which yarn passes as it is unwound from a yarn package supported on the holder.

Drafting Mechanism for Textile Fibers. Joseph Noguera (to Casablancas High Draft Co. Ltd.) USP 2 536 884, January 2, 1951.

Drafting apparatus for textile fibers comprising two superimposed transverse rollers, means for driving said rollers, two endless belts in the form of elongated loops supported at their rear ends one on each said roller, two independent side plate members resting on the lower roller at their rear portions and positioned one on each side of said belts, said side plate members each being formed with an elongated notch having upper and lower

surface engaging portions at their forward edge, and a two pronged tensor, the prongs of which are located one within each said belt loop to correctly position the front ends of the loops, the upper prong of said tensor being formed with a slot adjacent each end and each said slotted portion of the prong being in co-operating engagement with the upper surface engaging portion of the notch in the adjacent side plate in such manner as to hold the said side plates and tensor in their operative positions without other securing means.

Eastern Carolina STA meeting. *Textile Industries 115,* 157, 159 (Jan. 1951).

A report on the Eastern Carolina Division of the Southern Textile Association meeting gives notes on their discussion of operating problems. Included are the following subjects: the new U-type pin and cradle on spinning frames; waste in opening and carding; the new pneumatic rack release for pickers; overhead automatic loom cleaning and other methods of loom cleaning; and loom fixing.

Look—no rules! For carding and spinning calculations. W. A. Thomason, Jr. *Textile World 101,* 131-35, 137, 139, 141, 143, 145 (Jan. 1951).

The basic principles of textile operations and calculations are reviewed. An understanding of drafting and twisting principles enables the mill man to minimize the use of formulas.

New Means of drafting cotton. Anon. *Textil Praxis 4,* 211-212 (May, 1949); *in German.*

A modification in means for strand control during the predrafting stage. A pair of nip rolls are placed between the feed rolls and delivery rolls. In the first draft zone, tension on the strand is relaxed, long fibers are freed, while the short fibers remain within the strand.

Machine for manufacturing twisted core chenille. Henri G. Lemoine. USP 2 534 039, Dec. 12, 1950.

A machine for manufacturing twisted core chenilles, including a support; a first system of core thread spools rotatably mounted on the support; a second system of trimming thread spools also rotatably mounted on the support; drive means for simultaneously rotating both systems; means for imparting planetary rotation to the trimming thread spools simultaneously with the rotation of the second system involving the latter pulleys rotatably mounted for rotation with both systems

and spaced apart in effective positions to movably support the drive belts independently of each other but in such manner that a limited length of one belt extends substantially co-extensively with a corresponding limited length of the other belt; means for simultaneously driving the two endless drive belts in such manner that the co-extensive lengths thereof travel in the same general direction; means for guiding the core threads from the core thread spools between the co-extensive lengths of the endless drive belts in effective position to cause simultaneous entwining of the trimming threads from the trimming thread spools with the core threads; and operable guide means accompanying the two systems in rotation and guiding the intermediate portions of the co-extensive lengths of the endless drive belts together in effective relation to feed the trimmed core threads through the machine and simultaneously twist the threads by the effect of the rotation of the two spool systems.

Manufacturing semi-combed worsted yarns. Talkenburg. *Textil-Praxis 4,* 310-12 (July, 1950), *in German.*

Semi or half combed worsteds contain short fibers and are midway in quality between carded woolen yarns and worsted yarns. Description of carding practice, one table. (T.I.F.)

McGlynn Hays to furnish Ambler drafting system. Alfred D. Cook. *Daily News Record 25,* 27 (Jan. 2, 1951).

See front section.

Method of making paper yarn. Harry D. Kitchen (to Sackner Products, Inc.) USP 2 532 923, Dec. 5, 1950.

The method of making paper yarn comprising the steps of crumpling and compressing a strip of paper into a strand of generally cylindrical section, further compressing and conforming the strand into a flattened section of substantially uniform width and thickness, forming a colored strip on one side of the flattened strand and at one side of the longitudinal center thereof, and twisting the flattened strand into a yarn with the strip on the outer side thereof, the stripe when the strand is twisted forming a spiral stripe on the surface of the yarn.

Modern developments in wool yarn processing machinery. J. A. B. Mitchell. *Textile Mfr. 76,* 595-7 (Dec. 1950).

The spinning mule still retains its popularity, and the latest models certainly incorporate some features which are in line with present day re-

quirements of higher output and larger packages. Continuous blending and oiling, a comparison between the English and Continental systems of carding, and a description of what is called the "semi-continental" carding sets, together with improvements in waste handling and spinning are topics briefly discussed.

New self-centering spindle from textile spindle and mounting. L. E. Keene et al. (to Reconstruction Finance Corporation.) USP 2 525 911, Oct. 17, 1950.

See front section.

New spinning frame. Anon. *Fibres 11*, 448 (Dec. 1950).

See front section.

Panel discussion on gouts. *Textile Industries 115*, 103-4 (Jan. 1951).

See front section.

Proper treatment increases v-belt life. Tyler G. Hicks. *Textile World 101*, 124-5 (Jan. 1951).

Heavy starting loads, moisture, temperature, and oil shorten the life of a belt and increase machine downtime. Proper preventive maintenance illustrated by this article will spot the causes of belt wear on machines that use V-belts, such as warpers, winders, cards, pin drafters, cleaners, blending feeders, spinning frames, and dryers. Proper location of belts from the standpoint of good atmospheric conditions, and good methods of handling, installing, and removing belts are reviewed. V-belt troubles, their probable causes, and remedy are outlined in a table.

Remedy for cylinder slippage on mule spinning frames. *Textile Industries 115*, 165, 167 (Jan. 1951).

Cylinder slippage may cause a great deal of bad work in mule spinning and usually occurs at the ffrst cylinder coupling, situated each side of the headstock, where the couplings work under considerable strain. Changes in the coupling to prevent all possibility of slippage are described and illustrated in a diagrammatic sketch.

Ring for ring spinning machines. Gordon H. Pimley (to Dobson & Barlow Ltd.) USP 2 533 503, Dec. 12, 1950.

A ring for a ring spinning machine comprising a bottom ring and a top ring mounted upon the bottom ring, a ring rail carrying the rings and having circular holes in which the bottom ring is rotatably mounted, the bottom ring resting on the ring rail, a flange on the bottom ring extending downwardly over the edge of the hole and to hold the bottom ring rotatably in engagement with the rail, vertical projections at spaced distances on the top face of the bottom ring, the projections having inclined top faces, holes in the bottom rings for insertion of tommy levers to turn the bottom ring on the ring rail, the top ring being resiliently held down and centered on the bottom ring and having inclines on its under face resting on the inclined top faces of the vertical projections on the bottom whereby the top ring is raised and lowered as the bottom ring is turned.

Spindle for use in textile machines. Earl S. Wood (to Whitin Machine Works) USP 2 536 618, Jan. 2, 1951.

In a spindle for supporting and rotating a yarn carrier, a one-piece steel blade having an enlarged upper end portion, a barrel of a light-weight material which carries its full diameter to its extreme lower end and which has a recess in its lower end portion in which the enlarged upper end portion of the blade is received and firmly engaged and which engages and centers the yarn carrier at its upper end only, and a driving whirl of a strong metal which has an upwardly-extended sleeve which encircles and firmly engages the lower end portion of the barrel on its full-size outer surface, and which is of greater outside diameter than the barrel, whereby the upwardly-extended sleeve reinforces the barred and loosely centers the lower end portion of the yarn carrier and holds the lower end portion spaced outwardly from the barrel.

Spindle brake. Frank D. Boyden (to Saco-Lowell Shops) USP 2 533 162, Dec. 5, 1950.

A spindle brake comprising a brake shoe encircling a part of the revolving element of the spindle, means supporting the shoe for swinging movement around the axis of the spindle, the brake shoe having a surface operable to engage the revolving eiement when swung through a predetermined angle and to release the part when returned to its normal position and an operating member for the brake shoe.

Spinning and spooling problems. *Textile Industries 115*, 137, 139, 141, (Jan. 1951).

See front section.

Spinning nylon yarn on the woolen system. *Textile Industries 115*, 124, 199, 201 (Jan. 1951).

Information on the opening, blending, carding and spinning regular or crimp-set nylon staple on the woolen system, taken from a new technical service bulletin issued by the DuPont Company

is given. Attractive, loftey yarns and excellent blended yarns can be made on the woolen system.

Spinning tricot yarns. Anon. *Textil-Praxis 4,* 349-50 (July, 1959) ; *in German.*

Tricot yarns usually are one-colored and range in numbers from 8-10s. To spin finer numbers, an assortment of three cards are used. Production details of these systems are outlined.

Stop control mechanism. John C. Bodansky (to Cocker Machine & Foundry Co.) USP 2 534 896, Dec. 19, 1950.

In a beam warper of the type having a warp control means between a source of warp supply and a selectively driven warp beam, the warp control means comprising a first set of rolls having fixed axes, a second set of rolls, a carrier for the second set of rolls, the carrier being mounted for movement between an upper position in which warp passing between the two sets of rolls is untensioned thereby and a lower position in which the warp is drawn into loops of substantial length, and the movement from the upper to the lower position involving a gravity descent of the carrier, the carrier being normally releasably held in the upper position, means for releasing the carrier for initial descent to an intermediate position followed by gravity descent to the lower position, and means whereby the carrier may thereafter be automatically elevated to the intermediate position by the pull of the warp thereon.

Stop mechanism for spinning frames. Maurice Carrette (to Luwa A.-G Zurich) USP 2 533 310, Dec. 12, 1950.

In a spinning frame having a stop motion, the combination of electromagnetic means operative to initiate actuation of the stop motion, a bobbin carrying rail adapted to reciprocate substantially in the direction of the axis of the bobbin spindles, a suction conduit provided with a series of suction orifices, means for feeding a sliver in front of each suction orifice to the bobbins, means movable within the suction conduit in response to change in suction conditions therein, the electromagnetic means becoming operative upon displacement of the movable means due to a change in suction conditions in the conduit when a sliver breaks or a single is produced and broken sliver is drawn into the suction conduit, and means preventing the electromagnetic means from becoming operative when the bobbin rail is substantially at either end of its course.

Thread Brake. Albert Moessinger, Winterthur, (Sulzer Freres, Societe Anonyme) USP 2 537 476, January 9, 1951.

A thread brake comprising a flexible member having marginal portions, a brake shoe movable substantially at a right angle to and from said member between said marginal portions, and stretching and supporting means rigidly connected with said marginal portions and holding said member in stretched condition.

Twisting and drafting of woolen yarn on the ring spinning frame. W. Frotscher. *Textil-Praxis 5,* 277-279 (May, 1950) ; *in German.*

The author describes the twist to give wool roving in order to obtain a good yarn. Eight tests were made with varying twist on a yarn composed of 50 per cent fleece wool, 25 percent rayon, and 25 percent reworked wool. Tables. (T.I.F.)

Warping machine of advanced design. Anon. *Brit. Rayon & Silk J. 27,* 73-4 (Dec. 1950).

Suitable for warping viscose, acetate and nylon yarns for the knitting and the weaving industry, the machine can deal with beam widths ranging from 14 in. to 42 in., while it can accommodate beams with flanges from 14 in. to 36 in. diameter. To reduce the labor required to place empty beams in the machine and to remove full beams, a press button control has been applied which enables the arms carrying the beam to be raised and lowered automatically to any desired position. Thus the full beam may be lowered, by merely pressing a button, on to the floor or on to a trolley when warping is complete.

The height of the beam can be regulated to suit the operative and once adjusted the height of the warp sheet remains the same irrespective of the increasing diameter of the warp. The advantages of this, from the point of view of the operative, are that the work is less fatiguing and she is able to maintain more vigilant supervision of the warp threads during processing.

The main drive to the beam is from an electric motor, through an 8 speed gear box and then by a Brammer belt drive to what might be termed the headstock driving the actual beam. The beam is thus directly driven and the more orthodox type of pressure drum drive is dispensed with.

Being of the constant yarn speed type of machine, with a view to maintaining a uniform warping tension from the start to completion of the warp, the machine incorporates means for automatically reducing the rotary speed of the beam as the diameter increases. The main driving motor is of the variable speed type which is indirectly controlled by a yarn speed indicator driven by one of

the levelling and tensioning rollers. Any increase in yarn speed automatically puts into operation a secondary motor which controls the speed regulator on the variable speed motor. Mfr: F. N. F. Ltd., Burton-on-Trent, England.

Winding spindle. Antonio Beria, USP 2 537 506, January 9, 1951.

Winding spindle for imparting a double twist to thread operating at high rotation speeds, comprising in combination a support, a bell mounted on ball bearings on said support, means for rotating said bell on its axis inclined with respect to the vertical, a spindle fixedly connected with said bell, the axis of said spindle being coincident with the axis of said bell, said spindle being axially bored in its upper portion, said axial bore being connected at its lower end with a hole opening on the outer spindle surface, a ball bearing on the upper end of said spindle, a second bell carrying the spool on which the thread is wound mounted on said ball bearing, means for rotating at an adjustable speed said second bell in the same direction as the spindle, means for varying the rotation speed of the bell carrying the spool as the spool diameter varies, a thread guide, a support for said thread guide, means for rotating said support with respect to said spindle, means for displacing thread guide parallel with the spindle axis and means for guiding the thread.

Worsted spinning system. R. Morrison. *Textil-Praxis 5*, 344 (June 1950); *in German.*

The Rieter-Winterthur machine, with its more constant control of ballooning and stationary ring rail, is reported to spin worsted counts to 90s and to produce up to 170 g. bobbins.

Winding and spooling B 5

Automatic quiller from Czechoslovakia. Anon. *Skinner's Silk & Rayon Rec. 24*, 1658 (Dec. 1950).

The new Zet automatic quill winder made by Krovo Co., Prague, produces speeds up to 10,000 rpm, and winds spun rayon, cotton, wool, flax, hemp, and jute yarns.

When fully wound, the pirn is automatically disengaged. A bunching system can be easily varied between 0 and 10 metre, by a robust split cam control. A grooved guiding roller cross winds the pirn, thus eliminating all reciprocating motions and reducing to a minimum friction, on the yarn. This guide allows the yarn to be wound at up to 10,000 rpm. The traverse motion is controlled by the initial tape segment and by a feeler

wheel, which can be adjusted to wind pirns of up to 40 mm. diameter. The automatic stop motion operates for either yarn breakage or when the pirn is fully wound. 96.25% of theoretical production was obtained by the new winder on 20s singles yarn at a speed of 6,000 rpm, as compared with 88% from a winder equipped with old-style chucks.

Automatic pull-out skein winding machine. Anon. *Fibres 11*, 450 (Dec. 1950).

See front section.

Apparatus for winding yarns on cards. Mario Nava. USP 2 533 037, Dec. 5, 1950.

Apparatus for winding a plurality of equal lengths of thread side by side on a flat card comprising a base, vertical pins on the base for supporting packages of thread, vertical supports for guide and tension rods for the threads, adjustable guide and tension rods mounted in the vertical supports, guide eyes on the supports spaced apart at fixed distances, vertical supporting plates for the winding mechanism, the winding mechanism comprising a spindle securing means at one end of the spindle for a rectangular plate, a rectangular plate mounted in the center of one end on the securing means, the center line of the plate being axially aligned with the spindle, the securing means having a slot for receiving one end of a flat card mounted on the plate, securing means having a slot for receiving one end of a flat card mounted on the plate, securing means at the other end for detachably holding the flat card on the plate, a pinion on the spindle, a gear wheel meshing with the pinion, a pinion compounded with the gear wheel and both mounted on a detachable spindle, a gear wheel in mesh with the compounded pinion, manually operable means for rotating the last gear wheel, a flange on the gear wheel, the flange having a gap therein, and a spring actuated strip resting on the flange and engaging the gap at each rotation movement until manually released.

Bobbin for knitting yarn and the like. Jacob Gomberg. USP 2 533 731, Dec. 12, 1950.

In a bobbin for holding wound yarn, or the like, in combination, a pair of oppositely disposed members mounted to axially move in respect to each other, spaced apart peripheral lips on the members, peripheral rims on the members below the lips, a sleeve on one of the members, a hub on the other member, the hub fitting within the sleeve slots in the sleeve communicating with the outside of the member carrying the

sleeve, a pair of oppositely inclined cams, one of each of the cams being disposed at opposite sides of the outside edges of the slots, a pair of outstanding lugs, at the free end of the hub, slidable in the slots, and when the members are assembled and axially moved, having relative movement with respect to the cams, a pair of upstanding fingers at the inner edges of the slots, two pairs of spaced ears at the base of the hub, the fingers, when the members are assembled and the rims are in contact, lying in the path of movement of the ears.

Control device for winding machines. Edward J. Heizer & Meredith R. Stuart (to Specialties Development Corp.) USP 2 532 304, Dec. 5, 1950.

In a winding machine comprising a rotatable package support and thread guide supporting means, the supporting means and the package support being relatively movable into separated position under the influence of gravity; the combination of means for contacting the package adapted to be operated thereby as the package grows in size, means for retarding separation of the supporting means and the package support including locking means controlled by the contacting means, and a spring member for assisting the force of gravity to effect separation of the supporting means and the package support.

Donning mechanism for bobbin handling machines. Russell P. Drake (to Barber-Colman Co.) USP 2 534 162, Dec. 12, 1950.

In a winding machine having a magazine for supporting a stack of empty bobbins and a winding spindle at one side of the magazine, a bobbin donning mechanism comprising a cradle normally positioned beneath the magazine and serving to support the stack of bobbins therein with the lowermost bobbin received in the cradle, the cradle being mounted for movement from its normal position to carry a bobbin to the winding spindle, an escapement device normally positioned out of the path of downward movement of the stack of bobbins in the magazine and operative as an incident to the movement by the cradle of the lowermost bobbin toward the spindle to engage and hold the next lowermost bobbin whereby to support the remaining bobbins in the magazine, and cam means movable with the cradle and engageable with the next lowermost bobbin to lift the same together with the bobbins above it to permit entry of the escapement device into position beneath the lowermost bobbin.

Eliminating static in textile processes. Anon. *Textile Mfr. 76,* 607 (Dec. 1950).

The "Simco" eliminator contains a compact power unit fed from an a.c. supply, which provides high voltage current with low amperage to bars fixed on the machine. The unit insures maximum ionization of air in the work areas around cards, drawing, roving, and spinning frames. Complete static neutralization is claimed. Mfr: Croxted Mfg. Co., Ltd., 52-54 High Holborn, London, W.C.1.

Mechanical handling in an American rayon knitting mill. F. A. Westbrook. *Textile Mfr. 76,* 584-5 (Dec. 1950).

Features of a system specially designed to operate in a mill constructed with a low ceiling, including tramrails for transporting beams in winding and knitting departments, technical specifications of the crane employed, and arrangement of the tramrails over the knitting machines at Fenimore Fabrics, Inc., Cobleskill, N. Y.

New automatic quill winder by Zbrojovka. *Revue Textile 47,* 31-33 (Jan. 1951); *in French.*

Spindle speed on Zbrojovka's new automatic quill winder is about 10,000 rpm. Ten heads are built into this winder, and surface winding is accomplished by a grooved cylinder. Article describes all parts of the machine.

New winder-redraw. Anon. *Textile Industries 115,* 172 (Jan. 1951).

A new type winder-redraw has a self-threading tension, self-opening spindleless attachment, and full spool stop motion. It is described as being as close to completely automatic as is physically possible. Mfr: Sipp-Eastwood Corp.

Quality winding techniques. *Tex. J. Australia 25,* 668-676 (Sept. 1950).

Discusses the processing of continuous filament yarns on precision and filling winders, drum winding of cotton, worsted and spun rayons, and headless package uptwisting.

Spool with Removable Heads. Harry Lovell Burbidge, USP 2 537 327, January 9, 1951.

A reel, for textile machinery, comprising a tubular metal hub having external screw threads formed at its ends, and two end flanges of a fibre-reinforced plastic, each of said flanges having a rim portion extending axially beyond one face thereof which is to be the outer face, said end flanges having, on the faces which are peripherally bounded by screw threads which respectively receive and completely mask the screw

threads at the ends of the hub when screwed fully there into, said flanges also having on their said inner faces central bosses extending into the adjacent ends of the hub and provided centrally with coaxial holes which are outwardly flared at their ends within the hub.

Spool moistening device for lap winders. Anon. *Textile Industries 115*, 171-2 (Jan. 1951).

A spool moistener for lap winders consists essentially of a magazine feed which automatically moistens a spool whenever the lap is doffed. Moistening is accomplished by having the spool roll over a cloth wick which is kept moist by absorbing water and a special wetting agent from a supply at the bottom of the magazine. Waste is reduced, runouts improved, lap winder efficiency increased, etc. result from use of the device. Mfr: Saco-Lowell Shops.

Testing Device for Filamentary Materials. John B. Steiding (Celanese Corp. of Am.) USP 2 537 170, January 9, 1951.

In a device for determining and recording the linear response of a tensioned filamentary material when subjected to physical and chemical treatments, a supporting member, a bracket slidably mounted thereon for holding one end of a specimen of filamentary material, means for locking said bracket at any position along said supporting member, means cooperating with said last-mentioned holding means for exerting a variable, predetermined tension on said specimen, means movable in response to linear changes in said specimen when under treatment, and recording means, including a vertically movable chart, cooperating with said linear change responsive means for continuously recording said linear changes relative to elapsed time.

Thread winding machine. Wm. E. Mahoney (to Premier Thread Co.) USP 2 535 984, Dec. 26, 1950.

In a machine for winding a package on a core, an arm pivoted on an axis parallel to the axis of the package to rock toward and from the axis of the package, a roll carried by the arm to rotate on an axis parallel to the package and of a substantial axial extent to engage the surface of the package, and be moved away from the axis of the package by the package as the same increases in diameter, a second arm pivoted on an axis parallel to the axis of the package to rock toward and from the axis of the package, a thread guide for delivering thread to the package carried by the second arm, gears carried by the arms in

meshing relation and means to urge at least one of the arms toward the package whereby swinging movement of the first arm will cause a swinging movement of the second arm in response thereto and whereby the thread guide may be caused to follow the surface of the package without contacting the same.

Tubular winding core. Donald O. Beckner. USP 2 535 188, Dec. 26, 1950.

A tubular winding core for packaging textile strands, cordage and the like comprising a plurality of component parts individually integrally molded of plastic material and including two semiround trough-like half sections defining in mated opposition a conical tubular shell having reduced longitudinal terminal rims at the opposite ends, and annular base and head members of outer diameter respectively conforming them to the shell outer circumferance at the corresponding ends, each of the members having a centrally apertured transverse portion providing an outer end wall for the corresponding end of the core, a sleeve marginal to the central aperature and extending inwardly from the end wall to define with the aperture a circumferential bearing for a spindle, and at the inner face of the transverse portion an annular channel with parallel cylindrical lateral walls of a diameter and radial spacing for direct telescoping enclosure and rigid interlocking reception of the corresponding shell terminal rims abuttively inserted therein.

Warp-winding from cakes. John S. Chaya & Wm. L. Spann (to American Viscose Corp.) USP 2 534 339, Dec. 19, 1950.

A package holder for annular wound packages of filamentary material and suitable for use in warping from cakes, the holder comprising a base having an opening therethrough, a hollow member projecting from the opening and having an internal surface tapering inwardly from the base, a member having a generally cylindrical outer surface projecting from the base and surrounding at least a portion of the hollow member adjacent to the base, the inner surface of the second member being removed from the outer surface of the first member to provide an annular recess between the surfaces adjacent the end thereof away from the base, and reinforcing means arranged within and constituting the bottom wall of the recess rigidly connecting the hollow member and the member surrounding the hollow member together.

Warp-winding from cakes. John S. Chaya & Wm.

L. Spann (to American Viscose Corp.) USP 2 534 340, Dec. 19, 1950.

A method of warping from cakes of yarn mounted in a creel by a plurality of supports having outer annular bases, each cake being carried by the annular base with one end of the cake in direct contact with the base, comprising unwinding the yarn from each cake by guiding it over the end thereof opposite to the end in contact with the base of the support, passing the yarn unwinding from the cake around an annular guiding surface lying between the opposite ends of the cake and having a diameter greater than that of a full cake, to prevent sloughing-off of the yarn from the end of the cake over which the yarn is unwound during the unwinding operation, to control the angle of take-off of the yarn from the cake, and to hold ballooning of the yarn above a predetermined minimum during the entire unwinding operation, passing the yarn proceeding around the annular guiding surface through a guide spaced generally axially from the end of the cake over which the yarn is being unwound, and then guiding the several unwinding yarns to a rotating warp beam.

Winding for quality output. E. W. Schmiedel. *Knitter 15,* 31-2, 34, 36 (Jan. 1951).

Many different winders are used to prepare yarns for knitting machines. Three types generally are recognized: bottle bobbin and spool winders; precision winders; and drum winders, which include manual, semi-automatic, and automatic types. The principles of the three classes of winders are reviewed in detail.

Yarn package testing apparatus. Noel J. Folsom (to Celanese Corp of America) USP 2 536 164, Jan. 2, 1951.

In a yarn package testing device for determining the firmness and density of yarn windings on a yarn package support, the combination with testing means, including a force-driven pointed testing rod for penetrating the windings and a measuring device having a scale indicating the degree of penetration of the testing rod into the yarn windings on the yarn package, of a support for the testing means, means for moving the support and the testing means through a vertical arc, means for maintaining the testing means in a predetermined position, the support means comprising guide rods on which the testing means is slidably mounted for lateral movement, and means for mounting a yarn package to be tested in a fixed position relative to the position of the testing means.

Yarn testing B 10

How about quality control for small mills? W. A. Thomason, Jr. *Textile World 101,* 99-101 (Jan. 1951).

Quality control for Pilot Mills Co., Raleigh, N. C., requires only a two-man staff, yet has produced results in more uniform yarns, improved maintenance and quality. The testing equipment used by the program and the organization of the work are described in detail. Photographs of testing routines.

Low twist filament evenness measured. Anon. *Daily News Record, 26* (Jan. 2, 1951).

An attachment for present electronic evenness testers makes possible the measurement of low-twist filament yarn evenness and may be adapted to the measurement of soft rovings and slivers. Called Rotafil and developed by American Viscose, the attachment twists and rotates the yarn in order to overcome the difficulty of measuring soft strands which vary in shape from circular to flat.

FABRIC PRODUCTION C

Yarn preparation C 1

Depth effect of infra-red radiation. V. v. Berlepsch-Valendas. *Melliand Textilber. 31,* 710-13, (Oct. 1950); *in German.*

Remarks on the viewpoint of the equipment builder, whereby the process of drying textiles on the basis of the depth effect of infra-red radiation is characterized, while emphasizing the gentle treatment to which the fiber is subjected in the process, illustrating the point by citing examples from the industry. The problem of economy of operation is touched upon, starting from final drying by infra-red radiation, and the process itself is discussed. The method is specially well adapted for hardening and gelatinizing synthetic resins used for finishing of textiles. Small plants for checking new initial products, for the continuous control of quality and for setting up working recipes are recommended and finally a radiator system is mentioned, the maximum emission of which can be adapted to the effective absorption bands of the synthetic resin being handled.

Georgia operating executives exchange slashing information. Anon. *Am. Wool Cotton Reptr. 64,* 57, 59, 61, 63 (Dec. 14, 1950).

A report on the discussion of questions on slash-

ing and weaving at the recent meeting of the Textile Operating Executives of Georgia is presented. The subjects discussed included experiences with homogenizers, nylon-wool slasher blankets, hydraulic pressure squeeze rolls on slashers, high and low speeds for slashing warps, etc.

Sizing compositions. Fred Fortress & Marshall Duke (to Celanese Corp. of Am.) USP 2 532 400, Dec. 5, 1950.

A composition for the sizing of textile yarns, comprising a mixture in water of polyvinyl alcohol, a humidifying agent; a lubricant composition comprising a mixture of mineral oil, an oxidized vegetable oil, a dialkyl phenol, an alkylolamine and a higher fatty acid; and a conditioning agent comprising the desalted and dehydrated alkali-neutralized reaction product of oleum with a mixture of a higher fatty acid, a vegetable oil and mineral oil, which reaction product has been diluted with mineral oil.

Sizing of cotton warp. M. M. Tiwari. *Indian Tex. J. 60,* 956-59 (Sept. 1950).

Discusses the various facets of sizing in cotton mills. These include such factors as properties of the ideal size, sizing ingredients, and quality of water used in the preparation of sizes.

Sizing yarns. John G. Kershaw & Joseph A. Carrier (to Dominion Textile Co., Ltd.) Can. P. 469 516, Nov. 21, 1950.

See front section.

Why you should worry about size viscosity. Foster Williams. *Textile World 101,* 126, 270, 272 (Jan. 1951).

Size content of warp yarn depends upon the properties of the sizing solution, the material sized, the time of application, and the effect of the squeezing process. When the last three factors are constant, viscosity can be used as a practical measure of size pickup by the warp. It can also be used to find the best size formula for particular warps.

The properties of the sizing solution are therefore doubly important. The type and quantity of size, how it is prepared, and the operating temperature are said to be determined by the use of a viscometer. Viscosity measures these factors because it changes with different or variously prespared sizes. Viscosity increases as size quantity increases. It decreases as temperature is raised. During cooking, viscosity is low at the earliest cooking stage, increases during the paste stage, and decreases to the proper degree when cooking is finished. Undercooked size means high viscosity. Other variations or mistakes in size preparation are shown by the author to have marked degrees of effect upon viscosity. Thus, the basis for his claim for the importance of a viscometer is established.

Weaving C 2

A new chiffon velvet loom. Anon. *Skinner's Silk & Rayon Rec. 24,* 1660 (Dec. 1950).

A new face to face velvet loom possesses structural rigidity, eliminates vibration, runs easily. Ball bearings, strong cutting motion, speeds of 120 to 135 ppm on single-shuttle looms, and a slip clutch drive are other features. Mfr: Wilson & Longbottom Ltd., Nelson Foundry, Barnsley, England.

Barre marks in upholstery fabrics. Anon. *Am. Wool Cotton Reptr. 65,* 45 (Jan. 4, 1951).

In answer to an inquiry on how to avoid barre marks in an upholstery material, different causes that the condition could have come from are noted. The picking arrangement with one picker stick throwing the shuttle harder than another often causes this condition. More often, an uneven shed will cause variation. A take-up of a pawl type, operating irregularly, could cause variation; and the strain caused by the box operation on a box loom could be cause. It is not believed that tension on the beam is responsible for variations, although, irregularity would be less evident under relatively light tension.

Bobbin discharge chute. Karol Kulczycki & William Lundgren (to Steel & Alloy Tank Co.) USP 2 533 120, Dec. 5, 1950.

In a loom having means for ejecting the spent bobbins from a shuttle box, the combination comprising a receptacle for receiving the ejected spent bobbins, a delivery conduit for the ejected bobbins between the shuttle box and the receptacle, and bumper means in the conduit for retarding the speed of the bobbins in their course towards the receptacle and comprising a flexible resilient curtain sheet depending from the top wall of the conduit and secured at its upper edge to the top conduit wall, the curtain sheet being slit downwardly from its upper section to form a series of yieldable adjoining strips.

Cam dobbies: Hattersley and Northrop. W. Middlebrook. *Textile Mfr. 76,* 577-9 (Dec. 1950).

The Hattersley cam-driven model with pick-

finding attachment is an inclined knife or V-dobby, and accessibility is one of the many features of the Northrop cam dobby. Operational and mechanical details of the two dobbies are described, with six pictures and three line drawings of details.

Filling defects give constant trouble. Albert Frantz. *Textile World 101,* 128-9 (Jan. 1951).

See front section.

Georgia mill weaving practices. Anon. *Textile Industries 115,* 147, 149, 151, 153, 201 (Jan. 1951).

Included in this report on weaving practices discussed at the fall meeting of the Georgia Textile Operating Executives are: storage of warps prior to weaving; doffing cloth from looms; cores for winding cloth at looms; transferring rolls to cloth room; reed and harness maintenance; lining looms; tie marks on baled cloth; paper cartons for shipping cloth; cloth inspection tables and procedure; cleaning dobbies and jacquards; cleaning harness on the loom; plastic loom sheaves; aluminum harness frames; metallized sand rolls; vacuum cleaning on looms; drawtex heddles; and knock off yardage clocks.

Hand loom weaving. I. D. R. Christie. *Fibres 11,* 389-92 (Nov. 1950).

Handloom weaving from its earliest inception is discussed. In this, the first of a series of articles on the subject, terminology, historical developments and illustrations of needle weaving are described.

Improving weaving efficiency in Lancashire mills. Anon. *Textile Recorder 68,* 79-80 (Dec. 1950).

See front section.

Improved warp stop motion. Anon. *Brit. Rayon & Silk J. 27,* 75-6 (Dec. 1950).

Features of the new mechanical stop motion are: sliding serrated bar principle has been applied on the basis of fine precision construction to ensure positive and instantaneous reaction to warp yarn breakage; quick stopping of the loom by direct action on the starting handle, a patented clutch arrangement which stops the movement of the sliding bars while the loom is in motion, and an arrangement for quickly indicating to the weaver the exact position of a broken thread. No chains or cables are used and this is an advantage as such parts are liable to stretch and thus decrease the efficiency of the motion. Moreover, the latest model is simple in construction and operation and operates with closed or open-ended drop

wires without alteration and requires little or no attention when working. Mfr: Argus Textile Accessories, London, E.3.

Introducing the Gunne loom. Anon. *Textile Recorder 68,* 94-5 (Dec. 1950).

New German looms weave a variety of fabrics, light and heavy fabrics of intricate and simple design. The range of looms now being offered to the trade consists of a 4x4 box pick and pick loom, a 4x1 box model and a single box tappet loom. The reed spaces vary from 42 to 106 in. Construction, driving, and operational details are outlined.

Loom frame. Robert G. Mallard & Everett H. Ashton (to Steel & Alloy Tank Co.) USP 2 533 128, Dec. 5, 1950.

In a loom, a side frame, the side frame comprising a pair of spaced substantially vertical webs adapted to support operating loom parts, spacing means attached to the edges of the webs uniting the webs into a unitary structure, one of the webs having an opening therein for passage as a unit into the space between the webs of a loom mechanism including one or more elements adapted to operatively connect the mechanism to loom components positioned on the outside of the other web, means adjacent the opening for connecting the mechanism as a unit to the one web, the other web having one or more holes therein permitting passage of the one or more elements therethrough when the mechanism is properly positioned relative to the loom components, the one or more holes serving as positioning means for the mechanism during the installation thereof, and stress distributing members spanning the space between the webs positioned proximate the opening and united to each of the webs to reinforce the webs and acting to distribute the stress loading of the side frame due to loom operation to both of the webs.

Loom harness lifter. Primus T. Hipp. USP 2 532 496, Dec. 5, 1950.

The combination, with a vertically movable loom-harness and means to depress it, a lifting device for the harness comprising an adjustable bracket mounted on the arch of the loom, a tubular member, inter-engaging means on the bracket and on the tubular member for securing the latter at a selected position of adjustment on the bracket in vertical alignment with the harness, a spring located within and anchored at one end thereof to the tubular member, and a plunger secured at one end to the free end of the spring and at its

opposite end to the harness.

Loom shuttle. George Allan Miller, USP 2 536 653, January 2, 1951.

An improved tongue for a loom shuttle for use with a cop of the kind having little or no internal support and comprising a tapered center pin of part-circular section having at least one longitudinal substantially flat portion and a plurality of transverse corrugations on at least part of the rest of its periphery, a sleeve closely fitting on the pin, having a plain tapered external surface and being rotatable relative to the pin, means for holding the sleeve against axial movement off the pin, said sleeve having at least one longitudinal aperture corresponding to each said longitudinal substantially flat portion on the pin whereby the sleeve may be positioned so that the masks the corrugations on the pin with each aperture coincident with each of said substantially flat portions on the pin and thus forms a plain tapered tongue of part-circular cross section to receive the cop easily, and so that the sleeve and pin may be relatively turned whereby the corrugations of the pin protrude between the edges of each aperture in the sleeve to engage with and grip against the bore of the cop.

Loom shuttle. John J. Kaufman, Jr. (Steel Heddle Mfg. Co.) USP 2 537 140, January 9, 1951.

In a loom shuttle of the weft replenishing tupe having a bobbin gripper spring mounted therein with a shank portion secured in a recess in the body of the shuttle, a grip strap having top and bottom portions, engaging the shank portion of the gripper spring, an adjusting screw mounted in the bottom portion of the grip strap, said adjusting screw adapted, when adjusted, to angularly shift the gripper spring thereby to shift the axis of the bobbin in its vertical plane.

Manufacture of spool axminster carpet. A. Crossland. *Textile Mfr. 76,* 598-603 (Dec. 1950).

This type of carpet, in certain respects, is nearest to the handmade productions. In effect it resembles these in that all the tuft yarn is used for pile. The advantages and disadvantages of spool-loom production are cited. Wood or metal spools are employed and the details of the threads held by the spools and the number of pattern repeats per spool are given. The article describes methods of spool setting, its fitting into the tube frame, how it is secured to the spool chain, as well as weaving and tufting.

Method of weaving pile fabrics. Francis P. Groat

(to The Magee Carpet Co.) USP 2 532 903, Dec. 5, 1950.

The method of weaving on a wire loom a pile fabric floor covering having a warp pile face comprising high and low loops which comprises inserting into a shed a non-cutting pile wire having a straight loop forming edge, weaving the pile warps over the wire to form a weft-wise row of loops, inserting into a subsequent shed a non-cutting wire of less height than the first wire having a straight loop forming edge with a raised portion at its end, selectively weaving the pile warps over the last mentioned wire to form a weftwise row of loops of less height than the first row of loops, withdrawing the first mentioned wire to increase the height of the loops thereon whereby the loops in the first row of the same pile warps as the loops in the second row are reduced in height.

New crepe loom. Anon. *Brit. Rayon & Silk J. 27,* 71-2 (Dec. 1950).

One feature of the new 2x1 box crepe loom is the greatly improved two-shuttle drop-box motion. It is mounted outside the loom frame in a convenient and easily accessible position, and gives a two-and-two order of weft mixing. The motion is driven from the bottom shaft of the loom, a pinion on this shaft gearing with a larger wheel compounded with the specially shaped cam. This cam is machine ground to give a precise vertical movement to the shuttle boxes via the horizontal treadle lever and connecting rod. The treadle lever is fulcrummed in an adjustable bearing, and the complete motion is mounted to the side frame of the loom, gear wheels and cam being well guarded by a steel cover.

To avoid risk of damage to shuttles or the drop-box mechanism, in the event of incorrect shuttle movement, the motion is provided with two separate release devices. In the first place, the vertical shuttle-box rod is built in two parts and any undue or contrary pressure would cause the spring-controlled joint to yield and thus prevent breakage of any of the associated parts. Secondly, the bowl of the horizontal treadle lever is maintained in direct contact with the cam by a long spiral spring so that in the case of shuttle-jamming, etc., the bowl and the rear end of the horizontal lever would be forced away from the cam, which could then operate without moving the shuttle boxes or damaging the mechanism. Mfr: Harling & Todd, Ltd., Burnley, England.

New steam-jet loom cleaner. Anon. *Textile Industries 115,* 171 (Jan. 1951).

The new Speedylectric JC20 steam-jet loom cleaner is reported to be equally effective, more compact, lighter, and more easily maneuvered than the original model. High pressure, dry steam from the built-in boiler is delivered to the steam lance and directed at high jet velocity against the loom parts to be cleaned. Steam jet cleaning is recommended once every 6 months or once a year to remove sticky oil and grease. Mfr. Livingstone Engineering Corp.

New German looms now available to Britain. Anon. *Textile Mfr. 76,* 604-6 (Dec. 1950).

A compact built-in electric drive, a stop-on-pick center weft fork motion, and an efficient inching motion are some of the special features of this range of looms, manufactured by German firms. Contruction details, seven photographs.

Picker stick. Tevis R. Wageley. (½ to Dunn Woolen Co.) USP 2 534 487, Dec. 19, 1950.

In a picker stick movable in a path which includes a position of bumper impact, slidable pivot means for supporting the picker stick, means for holding the pivot means in a fixed pivotal axis, and means to prevent release of the holding means when the picker stick is in bumper impact position.

Picker stick check strap. Frank B. Wakefield. USP 2 533 646, Dec. 12, 1950.

A flexible, shock absorbing, picker stick check strap for looms, comprising: a laminated leather strap having an outer ply and an inner ply, both plies being of substantial thickness, the outer ply comprising a strap of tough, dense, calendered tanned leather characterized by high tensile strength and serving to prevent undue stretching of the laminated leather strap under the strain set up in checking the movement of a loom picker stick, the inner ply comprising a strap of a highly porous compressible tanned grain leather, a layer of cement between the plies permanently bonding the inner ply to the outer ply to form a unitary structure, the inner ply being impregnated with a substantial body of oil of a non-drying nature distributed through-out the interstices of the inner ply and forming in effect a lubricant reservoir from which the oil can be readily expressed through the pores of the inner ply to the inner surface thereof by a blow from a picker stick, the substantial thickness, porosity, and compressibility of the inner ply enabling it to yield and be compressed substantially upon impact by the picker stick to cushion the shock of the picker stick on the check strap and to reduce the strain transmitted through the bonding cement to the outer ply, the impact of the picker stick automatically expressing oil from the porous inner ply onto the inner surface thereof to provide a sufficient oil film between the inner surface of the inner ply and the surface of the picker stick which engages therewith to reduce a minimum the development of frictional heat therebetween when in use, thereby preventing burning of the check strap and contributing to the long life thereof.

Picker stick check for looms. Franklin A. Ritchie. USP 2 535 814, Dec. 1950.

In a loom having a lay and a shuttle and a picker stick for projecting the shuttle across the lay, the loom also having a cam shaft and a cam wheel thereon for controlling movement of the picker stick for projecting the shuttle across the picker stick for projecting the shuttle across the lay, check means for the shuttle comprising a stationary check shoe and a spring loaded check shoe disposed in spaced relation to each other adjacent the path of travel of the picker stick and being engageable thereby as the shuttle is thrown against the picker stick, releasing means for the spring loaded check shoe operable through the cam shaft, the releasing means comprising an oscillatable shaft mounted intermediate its ends on the lay of the loom, a finger on one end of the oscillatable shaft and means on the spring loaded shoe for engaging the finger, a second cam wheel on the cam shaft and a mechanical connection between the second cam wheel on the shaft and the oscillatable shaft for transmitting movement to the oscillatable shaft in timed relation to movement of the picker stick from between the spring loaded check shoe and the stationary check shoe for moving the spring loaded check shoe out of engagement with one side of the picker stick.

Knitting C 3

Circular, independent needle, knitting machine. Brooks Stevens, Jr. (to Lawrence Mfg. Co.) USP 2 535 991, Dec. 26, 1950.

A circular, independent needle, knitting machine for knitting a unitary, tubular, plain-knit fabric of indefinite length having at least one relatively narrow, walewise extending area of rib knitting, which relatively narrow area of areas may be thereafter cut lengthwise on a median line thereof to provide at least one plain-knit, flat fabric having rib-bent, walewise extending, relatively narrow, side edge portions rendered non-curling after such cutting by reason of the rib-knit areas which

are each largely exceeded in width by the width of the plain-knit portion of the tubular fabric, the knitting machine comprising a needle cylinder having a circle of independent needles, a surrounding cam ring, means relatively to rotate the needle cylinder and cam ring, means to feed yarns to the cylinder needles at a plurality of spaced stations about the needle cylinder, a dial having radial grooves therein, independent dial needles supported only in such dial grooves as to be sufficient in number to knit only the relatively narrow area or areas of rib knitting, and thereby providing a relatively narrow segment of dial needles, cam means to project and retract the relatively narrow segment of dial needles, the cam means being carried by the dial and rotating therewith to project and retract the segment of dial needles, and synchronizing means cooperating with and co-related to the cam means for the dial needles and with the several yarn feed stations, thereby to project and to retract the relatively narrow segment of dial needles at such times that the dial needles take yarn in each course at each of the spaced yarn feed stations, always in and only in knitting the same wales and in accurately timed relation with the projection and retraction of the cylinder needles and thus create accurate marginal vertical lines of rib knitting at the marginal wales of such relatively narrow rib knitted area or areas.

Knitting-machine care sparks quality program. E. Dalton White. *Textile World 101,* 127 (Jan. 1951).

Utica Knitting Company, of Anniston, Alabama, reveals the maintenance and quality control details which have decreased seconds and machine stops on 38 spring-needle, 220 standard latch-needle, and 15 special machines designed by Utica's own shop. Oiling, cleaning, inspection, maintenance, and special knitter instructions are covered.

Knitting needle. Marcel Vitoux (to American Vitos Co. Inc.) USP 2 536 478, Jan. 2, 1951.

In a knitting needle having a needle shank, a hook at one end of the shank and a thread-operated blade pivoted upon the needle shank for cooperation with the hook in the formation of a knitted mesh fabric, a projection on the blade extending below the needle shank in the open position of the blade and forming a thread engaging edge on the blade for initiating a pivotal closing movement of the blade towards the hook when engaged by the thread, and an inclined edge on the lowe rside of the needle shank commencing in advance of the projection on the blade in relation to the movement of the thread and intersecting same to form a recess in which the thread engages and from whence it is guided to impart a forceful impulse to the blade at a predetermined point of its travel.

Manufacture of jacquard knitwear. L. Fabric constructions. J. B. Lancashire. *Textile Recorder 68,* 88-90 (Dec. 1950).

The fundamentals of jacquard knitting are briefly reviewed, loop structure by its system of notation, and varied knitwear designs and fabrics constructions are described, including rib jacquard fabrics, interlocks, and twill backing. Photographs.

Method for controlling yarn. Eugene St. Pierre (To Hemphill Co.) USP 2 532 467, Dec. 5, 1950.

A method of controlling a length of twisted nylon yarn running from a source of supply to a point where it is used progressively, such as to a knitting needle, under conditions causing an alteration in the twist of the yarn and a consequent tendency to pigtail if slack occurs adjacent the source of supply, which includes the steps of drawing the yarn from the source of supply under no tension other than that resulting from the withdrawing of the yarn to a tensioning device and thereafter forming a loop in the yarn and maintaining the loop in a single plane to prohibit transmission of alterations in yarn twist and consequent tendency to pigtail in the length of yarn between the source of supply and the tensioning device.

Principles of warp knitting. J. H. Blore. *Knitter 15,* 24, 26, 28, 30 (Jan. 1951).

The most widely used warp knitting machine is the tricot frame which knits fabrics of great variety from varied yarns. However, its principal fabric is underwear, which is made from viscose, acetate, and nylon filament yarns of 15 to 150 denier. Most common gauge is 28 needles per inch of needle bar. The vertical motion of the needle bar is described in detail, along with the modern use of a counter cam for more positive control.

Action of the mainshaft, the sinkers, the spring beard needles, yarn guides, beam and let-off, take-up, and details of the knitting movements are described.

Production control. Robt. Reinthal. *Textile Industries 115,* 121-4 (Jan. 1951).

An effective plan at Bamberger, Reinthal Co.

controls the production of a diversified line of goods on a wide assortment of knitting machinery. Before any operation is scheduled the various batteries of similar machines, the number of machines per battery, the demand for output of a specific battery, volume of style to be produced, delivery dates, and raw material supply are considered. When orders are received they are entered on an "order and Manufacturing Record". The sequence for running various styles is then determined, and a master production schedule is made up. Styles, quantities, and colors are ordered from the packing department by a "Cutting and Knitting Order", and details of manufacture are set forth on another form. The three production control points are at a central desk in each knitting division, the cutting desk in the cutting department, and the packing desk.

Proper lubrication is essential. Wm. M. Smith. *Textile Industries 115,* 97-9 (Jan. 1951).

Proper lubrication of full-fashioned hosiery knitting machines at the Blue Ridge, Ga., plant of Van Raalte Co. is divided between the knitters and a man whose primary duty is lubrication. The knitters lubricate all parts above the table of the machine, including the needles and sinkers, needle bar hinges, and friction rods, and also the Coulier motion which is below the table. The oiler lubricates all other parts. Two lubricating appliances are used by the knitters: (1) an ordinary, hand-operated push bottom type squirt oiler for the open oil holes and shafting and (2) a hand-operated Hudson type continuous sprayer for needles and sinkers. The friction rods are lubricated by a wick type oil feeder and a sight drop feed oiler. The lubricating man uses 3 types of appliances: (1) a hand-operated, push bottom squirt oiler, (2) a long spout, hand-operated oiler with pump enclosed, and (3) an electrically operated portable lubricating unit. The oiler lubricates all bearings with pressure fittings on all machines at one time and then lubricates all bearings having open type oil holes. The ball bearings supporting the hand-wheel shaft are lubricated twice yearly.

Rayon-yarn basing pad. George F. Dennis. USP 2 534 579, Dec. 19, 1950.

A rayon-yarn protector for use on a hosiery knitting machine comprising a horizontally disposable discoidal rigid base centrally apertured and adapted to be mounted on a vertical cone supporting pose, and a centrally apertured discoidal pad superimposed on and fastened to the top surface of the base, the pad being of a di-

ameter corresponding to the diameter of the base, being compressibly resilient, the upper yarn receptive surface of the pad being smooth and flat, and the center of the upper surface having a relatively shallow concentric depression, the out- the greatest diameter of the cone which is seatable side diameter of the depression corresponding to in the depression, the portion of the pad ranging from the outer peripheral edge of the pad to the outer peripheral edge of the depression being of uniform thickness.

Sinker control means for circular knitting machines. Robert H. Lawson & Maxwell P. Dodds (to Scott & Williams, Inc.) USP 2 534 460, Dec. 19, 1950.

Sinker control means for a circular knitting machine comprising stitch-forming cams, a needle cylinder, independent radially movable sinkers carried by the needle cylinder, independent vertically movable needles, and resilient means adapted to press the sinkers radially inward, in combination with a positive stop for the sinkers adapted to insure that all sinkers be limited to the same inward depth throughout more than half the needle circle, and means adapted to vary the effective position of the stop relatively to the sinkers according to the part of the article being knit.

Storage system reduces seconds. Anon. *Textile Industries 115,* 155 (Jan. 1951).

Storage bins numbered to correspond with knitting machine numbers are used at Maryon Hosiery Mills to store hosiery as it is taken from the machine. When sufficient quantities of goods have accumulated in the bins, bundles are prepared and taken directly to the loopers where defects attributable to faulty knitting machine operation are immediately reported.

Special fabrics C 4

Manufacture of sheets or webs of fibrous textile materials. Frank Happey & John H. Grimes (to Courtaulds Ltd.) USP 2 535 919, Dec. 26, 1950.

A process for the manufacture of non-woven fabrics which comprises the steps of acetylating unspun cellulose fibers while maintaining their fiber structure until the acetyl content of the fibers is from about 8 to 40 per cent, calculated as the percentage of acetic acid on the final weight of the fibers, forming a fibrous web of unspun fibers at least the major proportion of which consists of the unspun, incompletely-ace-

tylated cellulose fibers so obtained, and rendering adhesive the cellulose triacetate phase of the unspun incompletely-acetylated cellulose fibers whereby the fibers in the web are bonded together at their points of contact to form a unified fibrous structure.

Method of making nonwoven material. Luis G. Egger (to United Merchants & Mfrs., Inc.) USP 2 534 113, Dec. 12, 1950.

Method of making non-woven fibrous material, comprising the steps of applying an aqueous film of a water-soluble adhesive to a temporary support, distributing a layer of discrete fibers thereover while the film is still in an adhesive condition, removing the water from the film to cause the fibers to be fixed in web form, applying a coating of a water-insoluble resinous film forming organic material over the surface of the fibers whereby the fibers are partially embedded in the resinous film, drying the resinous film, and releasing the water-insoluble resinous film, and partially embedded fibers from the temporary support by dissolving the water-soluble adhesive.

Production of asbestos-rubber compositions. George D'Olier (to Raybestos-Manhattan, Inc.) USP 2 534 814, Dec. 19, 1950.

In a method of forming asbestos-rubber compositions and wherein rubber is admixed with fibrous asbestos only in the form of a latex of a rubbery material from the group consisting of natural rubber, butadiene-styrene copolymer, butadiene-arcylonitrile copolymer and polychloroprene, the steps which comprise inhibiting the coagulation of the lates by first thoroughly coating and admixing the asbestos fibers with a solvent for the rubbery material and then adding and admixing the latex therewith.

Strength of hooped foundations for gowns. G. W. Stevens. *J. Tex. Inst. 41,* P719-24 (Oct. 1950).

Assesses the aims in a physically realizable form, and analyzes the hooped foundation as a stressed structure so that the aims and designs can be linked together. Some design data are presented which give assured freedom from many undesirable features. Methods for simplifying construction and decreasing costs are also presented.

Unwoven fabric. Hugo Wurzburger (Paul D. Wurzburger) USP 2 537 323, January 9, 1951.

An unwoven fabric, comprising warp filaments, and simulated pairs of weft filaments aligned transversely of said fabric, said weft filaments being synthetic organic plastic material, the weft filaments of each of said pairs being contiguous to one another between each of said warp filaments.

STANDARD FINISHING D

Cloth singer has gas-mixing carburetor. Anon. *Textile World 101,* 150 (Jan. 1951).

Radiant-flame compression singeing equipment equipment uses a gax-mixing carburetor, resulting in better and faster singeing of fabrics. Sheetings, broadcloths, acetates, damasks, mohair, drills, rayon twills, velours, and mixture goods are processed on the new equipment. Mfr. C. M. Kemp Mfg. Co., Baltimore, Md.

Improving fatty intermediates for textiles finishing. L. J. Armstrong. *Textile Industries 114,* 144 (Jan. 1951).

Commercial development of short and long chain fatty acids and their derivatives has improved their use as textile finishing agents: detergents, scouring and softening agents, water-repellents, and lubricants. (Abstract of paper presented at AATCC convention).

New device gives better control in weft straightening. Anon. *Brit. Rayon & Silk J. 27,* 74-5 (Dec. 1950).

The makers of this machine, G. Durrant and Sons Ltd., Stockport, have recently introduced a major improvement by applying an electric drive to the roller adjusting mechanism, and this provides several important advantages. In the Durrant weft straightening system the cloth is passed through a compactly arranged vertical series of rollers, all being in movable end blocks which can be raised or lowered selectively in such a way as to permit inclination of the rollers relative to each other.

The change from parallel to divergent axis has the effect of retarding cloth speed at one edge relative to the other (the effect being proportionately distributed, of course, throughout the widty) since a slightly longer path for the fabric is created at one side. The machine can be easily and precisely adjusted, making it possible continuously to adapt the conditions according to the varying character of the cloth.

New light on the peroxide bleach for wool. Anon. *Fibres 11,* 396-7 (Nov. 1950).

Recent investigations by Alexander, Carter and Earland on peroxide bleaching of wool are discussed. Methods of application and the mecha-

nism of sorption, including such factors as pH and probable reactions are given.

Stripping of wool dyes with protection against chemical damage. E. A. Leonard & L. Beck. *Textile Industries 115,* 112 (Jan. 1951).

An abstract of a paper presented during 1950 AATCC convention. By stripping wool in the presence of ethylene dibromide emulsion a prolongation of wear life is indicated, and almost any process modification can be employed. Hussong and Franklin kettles have been used for protective stripping, and stripped stock may be redyed immediately without moving to another kettle.

The hydrogen peroxide dry-in process for bleaching wool. E. S. Shanley, H. O. Kauffman & W. H. Kibbel. *Am. Dyestuff Reptr. 40,* 1-4 (Jan. 8, 1951).

This is a study of hydrogen peroxide dry-in process for bleaching wool. The process is shown to be simple and economical, and very suitable for wool to be dyed. However, hydrogen peroxide bleached wool is especially susceptible to darkening during dyeing unless suitable precautions are taken to destroy residual peroxide traces.
Practical methods are described by which to obtain the best bleaching results and the brightest dyeings.

Wool scouring and oiling. C. A. Norris. *Textile Recorder 68,* 85-7 (Dec. 1950).

A report is made of progress in wool scouring and oiling techniques to help the dyer eliminate possible fabric faults. The two most prevalent sources of dyer troubles, inadequate removal of oils and excessive or unevenly distributed alkali in the goods, are discussed in detail. Synthetic detergents and detergent builders, raw-wool scouring, neutral scouring with comparative tabular data on alkaline and neutral scouring, and developments in wool oiling are covered by the report.

DYEING AND PRINTING E

Dyeing, printing, and finishing. R. F. Caroselli. *Textile Industries 115,* 107-9 (Jan. 1951).

By use of the Coronizing process decorative glass fabrics can be produced that give good performance and serviceability. The process consists of padding the goods through a dilute suspension of colloidal silica, framed to width and dried, and then heat-set removing all organic sizing. After leaving the heat-setting oven the fabric is either dyed or screen printed. In dyeing the fabric

passes into a dyebath containing a pigment and a stable latex binding resin, dried, aftertreated with another padding, and dried. For screen printing a latex preparation thickened with an alginate and containing a paste pigment is used. After printing the fabric is cured, given a second aftertreatment, and again cured. Finally scouring is done in a warm soap solution in a dye-bath and dried.

Dyeing acrylonitrile polymers by applying an insoluble azo dyestuff and then heating. Ralph B. Baker. (American Viscose Corp.) USP 2 532 437, Dec. 5, 1950.

A method of dyeing shaped articles comprising an acrylonitrile polymer which comprises treating the article with an aqueous dyebath containing a water-insoluble azo dyestuff.

Dyeing of textile materials by the use of light-sensitive diazo salts. Sam Charles Slifkin (General Aniline & Film Corp.) USP 2 537 097, January 9, 1951.

A light sensitive element comprising a textile fabric impregnated with a light sensitive diazo compound decomposable by light to form a non-coupling compound, an organic compound coupling in alkaline medium, a precoupling stablizer, and zinc chloride the latter being in amounts of from 5 to about 10% exclusive of any required to form a complex salt with the diazonium compound.

Dyeing wool stock. Article 6: Vat dyes. Robert W. Joerger. *Textile Industries 114,* 115, 117-18 (Dec. 1950).

Two methods have lately been worked out to facilitate the use of vat dyes of the anthraquinone class in the dyeing of wool. About twenty dyestuffs are now available for these methods. Leuco vat esters, first marketed as Indiogosols and later as Algosols, have good affinity for wool. Excellent fastness is obtained, though the dyeing properties of individual members of this class may vary. Dyebath exhaust and other problems are outlined.

Dyeing cellulose esters and ethers with alkaline aqueous solutions of leuco vat dyes containing di-acetone alcohol. Henry Charles Olpin & Edmund Stanley (to Celanese Corp. of Am.) USP 2 524 073, Oct. 3, 1950.

Process for the coloration of textile material of a compound selected from the group consisting of cellulose esters of organic acids and cellulose ethers with a vat dye, which comprises allowing the material to substantially absorb the leuco

vat dye from an aqueous medium having a pH value below 11.5, the medium containing an alkali metal salt of an acid of dissociation constant less than 10-5 and containing sufficient di-acetone alcohol to impart to the medium a substantial swelling action on the cellulose derivative, and thereafter directly washing the material and oxidizing the leuco compound to the parent vat dye.

Dyeing of cellulose acetate with acid dyes in an aqueous solution containing a mixture of swelling agents. Jackson A. Woodruff (to American Viscose Corp.) USP 2 517 751, Aug. 8, 1950.

Cellulose acetate is dyed with an acid dye in a dye bath containing ethyl alcohol, water, and from 1 to 3% of resorcinol.

Effect of dispersol VL on the dyeing properties of vat dyes on viscose rayon. R. W. Speke. *J. Soc. of Dyers & Col. 66,* 569-75 (Nov. 1950).

It has been shown that the restraining effect of Dispersol VL upon Leuco vat dyes is a function of the amount present in the system and not of its concentration in the aqueous solution. A method of assessment of the relative sensitivities of individual leuco vat dyes has been evolved. By this method the relationship between the dyebath exhaustion and the amount of Dispersol VL the dyebath, obtaining under given dyeing conditions, is experimentally determined. A sensitivity factors then calculated from the slope of the initially graphical relation between these two variables. Evidence is presented to show the influence, on restraining effect, of varying the depth of shade, the temperature of dyeing, and the salt concentration of the dyebath. Investigations into the retarding and levelling effects of this non-ionic body, as herein reported, indicate that these two properties are related to the restraining effect of Dispersol VL upon the leuco vat dye under consideration.

Effect of urea-formaldehyde treatment of the photochemical discoloration of bleached jute. H. J. Callow. *J. Tex. Inst. 41,* T404-10 (Oct. 1950).

Cites the effect of forming urea-formaldehyde polymers within cellulosic fibers in order to prevent photochemical discoloration. Maximum reduction was observed when washing of the jute was completely eliminated. The two main reasons for the protection of the bleached jute as a result of the treatment were as follows: (1) Resin deposited on the surface prevents light from reaching the sensitive components. (2) Some of the

polymer, or its components appear to block the reactive lignin groups.

Fast shades on nylon fabrics. G. T. Douglas. *Knitter 15,* 36, 38, 40, 42, 44 (Jan. 1951).

Nylon is one of the most versatile fibers as far as "colorability" is concerned. While many types of dyes may be used on nylon hosiery, the dispersed acetate rayon dyestuffs are the most widely used. Soluble acetate rayon dyestuffs, e.g. solacets, are also suitable and have some individual characteristics that render them more fast to washing than the dispersed dyestuffs. Acid, pre-metallized, basic, chrome, vat, and azoic dyes are discussed in relation to affinity, penetration, and fastness.

Fastness ratings for acid, "Chromacyl" and chrome dyes on wool. Anon. *Calco Tech. Bull. 6,* 196-208 (Dec. 1950).

The new evaluations are indicative of the effects of carbonizing, fulling, hot moist pressing and perspiration on dyed tropical worsted. All the DuPont acid, Chromacyl and chrome dyes were applied to tropical worsted in medium depths of shade. Unless otherwise specified the chrome color dyeings were made by the top chrome method. Portions of all the dyeings were then subjected to four colorfastness tests. These tests demonstrated that, in general, all of the dyes evaluated exhibited very good fastness to hot moist pressing. The other fastness properties varied considerably with the individual dyes.

Method of determining causes of faulty dyeing of cellulose fibers. II. Relationship of iodine sorption and the crystallization of cellulose fibers. K. Schwetassek. *Melliand Textilber. 31,* 764-9 (Nov. 1950); *in German.*

The method used to clear up mercerization faults by quantitative iodine sorption can be similarly applied to determine the reason why synthetic fibers of cellulose hydrate stain differently. The various chemical and physical influences that go to alter the staining property affect iodine sorption either positively, or negatively, or have no influence at all. That affords a means of drawing conclusions on the nature of the action that causes the faults. The author assumes the presence of parallel processes in reactions that get rid of swelling: coagulation and thickening of the amorphous part, crystallization and increase of the crystallization and increase of the crystalline part, only the latter of which is indicated by the iodine sorption.

Method of printing with sulfuric acid esters of

leuco vat dyes of the anthraquinone series. Andre Schoen (to General Aniline & Film Corp.) USP 2 521 485, Sept. 5, 1950.

A printing paste free from acid splitting agents and capable of yielding when applied to a fiber and steam-developed for 5 minutes prints fast to washing and of high intensity, containing as its essential components a leuco sulfuric acid ester of an anthraquinone vat dye, a thickener, an oxidizing agent, an oxidizing catalyst and an organic sulfur compound selected from the class consisting of aldehyde bisulfites, aldehyde sulfoxylates, and the alkali metal salts thereof.

Pigments and molding powders comprising polyvinyl acetal resins dyed with vat dyes. Louis A. Lantz, Arthur Schofield, & Ernest Spinner (to The Calico Printers' Assoc., Ltd.) USP 2 534 136, Dec. 12, 1950.

In the manufacture of pigments and colored molding powders, the process which comprises dyeing a finely-divided, partial polyvinyl acetal of an aromatic aldehyde, selected from the group consisting of aldehydes of the benzene and naphthalene series, and having a ratio of hydroxyl groups to acetal and ester groups ranging from about 40:60 to 60:40; a sufficient number of aromatic acetal groups being present to render the partial polyvinyl acetal insoluble in water; by mixing with the acetal a leuco-derivative of a vat dyestuff in an aqueous alkaline medium containing a reducing agent at a temperature within the range of about 50° to 100° C., washing the dyed acetal to remove unfixed leuco-derivatives, oxidizing the fixed leuco-derivative in an acid medium to regenerate the original dyestuff and recovering the resulting dyed product; the partial polyvinyl acetal having an average particle size not substantially exceeding 3.5 microns.

Printing textile fabrics with a dye paste comprising a styrene-maleic anhydride copolymer cross-linked with divinyl benzene. Raymond B. Seymour (to Monsanto Chemical Co.) USP 2 533 635, Dec. 12, 1950.

A method of printing textile fabrics which comprises treating the fabrics with a printing paste comprising a dye and an aqueous solution of a water-soluble salt of a copolymer prepared by copolymerizing a substance selected from the group consisting of styrene, methyl styrene, butyl styrene and chlorstyrene with a substance selected from the group consisting of maleic anhydride and partial esters of maleic anhydride, the copolymer being cross-linked with between 0.1 and 1% of divinyl benzene on the weight of the copolymer,

the salt being selected from the group consisting of ammonium salts and alkali salts and being present in the paste in an amount between 0.5 and 5%, and then steam aging the fabric.

Report of mechanical screen printing. J. L. Kombersky. *Tex. J. Australia 25*, 712-13 (Sept. 1950).

Cites the advantages of mechanical over conventional hand printing methods. The advantages are summed up as follows:

(1) Fewer operations.
(2) Less operators.
(3) More faithful register.
(4) Elimination of smudging, bleeding or spits.

Some problems of dyeing synthetic fibers. A. G. Tyler. *Brit. Rayon & Silk J. 27*, 57-8 (Dec. 1950).

Compared to wool, nylon can be easily saturated with dyestuff. The saturation value of nylon is 0.035 milliequivalents per gram of fiber, while that of wool is 0.81. The reason for this difference: the wool molecule contains many more free amino groups which can combine with many more sulphonic acid groups. The number of sulphonic acids groups in the acid dyestuff is therefore an important consideration in the choice of dye for nylon. Dyestuff affinity for the fiber is also important. But the latter factor is sometimes minimized in order to obtain a rather limited saturation value.

The details of acid dyeing procedures, as well as those of pre-metallized dyestuffs, azoic and vat colors, are described.

Spray application of dyestuff and other materials. Frederick C. Wedler. (to American Viscose Corp.) USP 2 532 471, Dec. 5, 1950.

Apparatus for treating fabrics comprising a plurality of juxtaposed chambers including a primary treating chamber, a drying chamber, and at least one treating chamber intermediate of the primary and drying chambers, each intermediate chamber having entrance and exit passages in opposite walls thereof, rollers within the chamber, one roller being adjacent each of the passages for guiding the fabric proceeding therethrough, and at least one other roller being mounted on an axis displaced from the plane of the axes of those adjacent the passages for guiding the fabric through a devious path through the chamber, a fabric exit passage in the wall of the primary chamber registering with the fabric entrance passage of the adjacent intermediate chamber, a fabric entrance passage in the wall of the

drying chamber and a roller associated therewith adjacent the fabric exit passage of the adjoining intermediate chamber, and means adjacent the fabric path in the primary and intermediate chambers for spraying treating liquids in controlled amounts directly upon the fabric.

Water-heating time converted to production time. E. H. Helliwell. *Textile World 101,* 130 (Jan. 1951).

Water-heating time was reduced from 15 minutes to one minute in the dye house of Guyan Mills, Inc., thus enabling dye jigs to keep pace with subsequent drying operations. Formerly, dye jigs could not keep up with dryers. The 14 minute gain previously spent in heating was made possible by installing an instantaneous hot-water heater. 100 gallons of water per minute was heated to a temperature of 180° F.

SPECIAL FINISHING F

A method of setting tricot fabrics. L. Leslie Walmsley. *Am. Dyestuff Reptr. 39,* P913-15 (Dec. 25, 1950).

The excellent results obtained in the control of the shrinkage of nylon fabrics, including tricot, by presetting led to the development of a machine for controlling the shrinkage of cellulose acetate tricot. The new presetting machine not only controls shrinkage, but it also eliminates the relatively expensive operation of tacking necessary in processing acetate knit goods.

Present practice and difficulties in handling acetate knit fabrics are described as well as the procedure followed in the use of the new machine.

The author discusses briefly the testing of finished tricot materials and points out the need for standardized testing methods. He also speaks of dye fastness and deprecates the present practice of using dyes for all kinds of knit goods, especially cotton, that are not so fast as the dyes employed for corresponding woven fabrics.

Modification of wool with beta-propiolactone. Harrison W. Jones & Harold P. Lundgren (to U. S. of Am.) USP 2 517 573, Aug. 8, 1950.

A process for chemically modifying wool comprising reacting wool with beta-propiolactone under substantially anhydrous conditions.

Coated sheet material and process for making the same. Carleton S. Francis, Jr. (American Viscose Corp.) USP 2 537 126, January 9, 1951.

The method of making coated fibrous sheet material having a depressed design therin that will

retain the design comprising depressing selected areas of a film that is adhered to a surface of a compressible non-woven fibrous web containing thermoplastic fibers and compressing the regions of the fibrous web beneath the selected areas of the film that are depressed, rendering the thermoplastic fibers in the regions of the fibrous web beneath the areas of the film that are depressed adhesive while these regions are compressed, and rendering the adhesive fibers in the regions of the fibrous web beneath the depressed areas of the film non-adhesive while these regions are compressed to bond fibers in these regions in the compressed state.

Compressive shrinking and finishing blanket. Zephir J. Chagnon (to Albany Felt Co.) USP 2 536 974, January 2, 1951.

A blanket of the group consisting of the compressive shrinking and finishing blankets comprising an endless woven and fulled fabric having substantially straight, comparatively coarse warp cables of high tensile strength, and comparatively fine filler yarns forming substantially the entire exposed surface of said blanket, at least on one side thereof; said filler yarns being formed of wool fibers and a substantial quantity, but less than that which will prevent appreciable fulling of said blanket, of nylon fibers which are exposed, at least in part, on the surface of said filler yarns and the surface of said blanket; whereby the resistance of said blanket to the distintegrating effects of heat, moisture, and abrasion is substantially enhanced.

Damage caused by non-shrink treatment of wool. Part II. R. W. Moncrieff. *Textile Mfr. 76,* 608-11 (Dec. 1950).

A review of methods of estimating damage caused by non-shrink treatment of wool. A photoelectric method first described by W. L. Semple in 1946 is designed for use with either the Kiton Red G test or the Indigo Carmine test described by Grieve. These latter two tests were objectionable because they were subjective, i.e., dependent upon the visual assessment of depth of shade and classification into five groups of fibers.

Semple's photoelectric method makes the tests objective, but requires a very elaborate experimental procedure. The author reviews various staining tests and physical tests which have been used to estimate wool damage.

Design of water-repellent fabric. (From news for puddle-jumpers) W. W. Carty. *Du Pont Magazine 44,* 16 (Dec.-Jan. 1950).

See front section.

Process of stabilizing rayon-containing textile fabrics. Fred G. La Piana (to Stein, Hall & Co. Inc.) USP 2 524 113, Oct. 3, 1950.

A process which comprises treating fabric containing synthetic fibers selected from the group consisting of viscose, cellulose, acetate, cuprammonium and nitrocellulose fibers with an aqueous solution containing from 3 to 25% by weight of a water-soluble reaction product of an aldehyde, an alpha-hydroxy monocarboxylic acid, an alpha-substituted ethanol and a member selected from the group consisting of urea, thio-urea, guanidine, carbamyl urea, biuret and an amino-triazine having at least one primary amino group, drying the treated fabric at a temperature up to about 200° F., and stabilizing the treated fabric by treating it, for a period of from about thirty seconds to about ten minutes and at a temperature between about 50° and 100° F., with an alkali solution having a concentration of from about 10 to about 35%.

Pin-tenter technique varies with fabric framed. K. S. Laurie. *Textile World 101,* 114-15, 267 (Jan. 1951).

The pin tenter method of framing a fabric differs considerably from the clip-frame method. Normally, the pin tenter is used for spun rayons, crepes, light wool fabrics, wool and cotton mixtures, tricot fabrics and lace. Its product generally is a relaxed fabric of stable finished dimensions. Details are shown of the machine construction and special equipment such as the electronically operated Ferranti combined guides and overfeed. Procedure for drying and suggestions for handling varied fabrics are given.

Special finishes, fatty intermediates. J. Fred Osterling. *Textile Industries 115,* 143 (Jan. 1951).

There are seven primary characteristics and 25 secondary characteristics of military fabrics to be integrated. The end use of the fabric determines the number of characteristics operative for one fabric since not all can be achieved at one time. (An abstract of a paper presented at AATCC convention).

Stabilizing cellulosic textile materials against shrinkage employing glyoxal and a metal silicofluoride as a catalyst. Leo Beer (to Alrose Chemical Co.) USP 2 521 328, Sept. 5, 1950.

In the process of stabilizing a textile material against shrinkage upon washing in hot aqueous solutions without significant loss in tensile strength and abrasion resistance, the steps of impregnating textile materials of the group consisting of natural cellulose, regenerated cellulose, and mixtures with each other and up to substantially 50% of cellulose esters of a short chain aliphatic organic acid, with an aqueous liquid containing substantially 1.0 to 10.0% pick-up based on the dry weight of the goods, mechanically removing surplus impregnating liquid, then drying the textile material after the liquid removal, and curing it at a temperature above substantially 100° C. for a period of time inversely related to the temperature until there is a substantial reduction in shrinkage in comparison with the un-treated textile material.

Treatment of textile fabrics with polyvinyl compound. Henry Ewing (to Celanese Corp. of Am.) USP 2 517 646, Aug. 8, 1950.

To reduce slipping, fraying, and laddering of woven knitted or netted textile fabrics, a solution of a vinyl chloride-vinyl acetate copolymer is deposited upon the fabric in an amount insufficient to close the interstices of the fabric.

Treatment of cellulose. Howard M. Buckwalter & Phillip D. Montgomery (to United States Rubber Company) USP 2 521 446, Sept. 5, 1950.

The method of improving the resistance of cellulose fibers to the deteriorating effects of heat aging which comprises incorporating guanazole in the cellulose fiber in amount of at least 0.25% by weight.

Treatment of regenerated cellulose fabrics with urea-alkali-stannate solution. Charles L. Mantell & Theodore J. Dabrowski (to United Merchants & Mfrs.) USP 2 527 143, Oct. 24, 1950.

Process of modifying regenerated cellulose fabric which comprises treating the fabric with an aqueous solution comprising from about 1 to about 15% by weight of urea, an alali metal stannate selected from the class consisting of sodium stannate and potassium stannate.

Treatment of regenerated cellulose fabrics with urea-alkali-zincate solution. Charles L. Mantell & Theodore J. Dabrowski (to United Merchants & Mfrs.) USP 2 527 142, Oct. 24, 1950.

Process of modifying regenerated cellulose fabric which comprises treating the fabric with an aqueous solution comprising about 3 to about 15% by weight of urea, an alkali metal zincate selected from the class consisting of sodium zincate and potassium zincate.

Method and means for yarn and fabric correlation. Robert M. Ingham, Jr., (to Deering Milliken Research Trust) USP 2 520 936, Sept. 5, 1950.

The method of correlating yarn with the appearance of fabric weavable from the yarn which comprises continuously varying an electrical current in accordance with variations in the diameter of the yarn during unidirectional longitudinal travel thereof, modulating an alternating current with said varying current, graphically recording the modulated current, and arranging equal lengths of the recorded current in parallel relation simulating one of the yarns of a woven fabric.

Tone-in-tone "Camaieu" effects. R. Thouvay. *Ciba Review 82*, 2997-8 (Nov. 1950).

"Camaieu" effects are tone-in-tone shades in one and the same hue produced in the same dyebath; the principle being that wools are processed to give different affinity and subsequently dyed in the same liquor.

The first experiments in altering the affinity of wool for dyestuffs were carried out several decades ago, and theoretically there are two possibilities: 1. Reduction of affinity; 2. Increase of affinity.

Reduction of affinity can be obtained for example by acetylating the wool, a method which may still be of some significance but which is, however, too expensive a method to be of practical use for this purpose.

The first attempts at increasing the affinity of wool were derived from the knowledge that strongly chromed wool (method for stripping shoddy) possessed an extremely high affinity for certain dyes.

Apart from the progress made in chlorination by known methods, research has developed new techniques, e.g., chlorination of wool by gaseous chlorine by which method wool can be satisfactorily chlorinated for industrial purposes.

Treatment of cellulosic textile materials and products thereof. Linton A. Fluck, Jr. (to American Cyanamid Co.) USP 2 536 050, Jan. 2, 1951.

The process of improving the properties of a cellulosic textile material which comprises impregnating the textile material with a combination of (1) a curable product of partial reaction of ingredients comprising melamine and formaldehyde, the product being at least partly soluble in water, and (2) a film-forming substance consisting essentially of a substantially water-insoluble, thermoplastic product of polymerization of polymerizable monomers, the polymerizable monomers consisting of, by weight, from 50% to 100% of a lower alkyl acrylate and up to 50% of a different monomeric compound containing a

$CH_2=C<$ grouping and which is copolymerizable with the acrylate, the products of (1) and (2) being employed in a weight ratio corresponding to from 1 to 3 parts of the latter for each part of the former, and curing in situ the partial reaction product of (1) in intimate contact with the polymerization product of (2) to a substantially water-insoluble state, the amount of the products of (1) and (2) applied to the textile material being such that the finished textile contains from 8 to 40%, by weight of the dry textile, of a substantially washfast impregnant consisting of the product of (1) in cured state and the product of (2).

Treatment of organic textile materials and products thereof. Edward L. Kropa, (to American Cyanamid Co.) USP 2 537 064, January 9, 1951.

A process of treating hydrogen-donor textile material to improve the properties thereof which comprises (1) treating said textile material with a composition comprising a reactive product of polymerization of a polymerizable mixture including (a) a primary isocyanate represented by the general formula

$$CH_2=CR\text{-}(A)_n\text{-}CH_2\text{-}NCO$$

where R represents a member of the class consisting of hydrogen and the methyl radical, A represents a member of the class consisting of divalent saturated aliphatic hydrocarbon radicals, divalent saturated aliphatic-substituted aromatic hydrocarbon radicals and divalent aromatic-substituted saturated aliphatic hydrocarbon radicals, and n represents a value selected from the class consisting of 0 and 1, the methylene radical attached to the isocyanate grouping being attached directly, when n is 1, to any carbon atom of the divalent radical represented by A, and (b) a different organic compound which is copolymerizable with the isocyanate of (a), which contains a single $CH_2=C<$ grouping, and which is free from a hydrogen atom reactive with the isocyanate grouping, the proportions of the said ingredients of (a) and (b) in the said mixture being such that the said polymerization product contains an average of at least two isocyanate groupings per molecule, and (2) heating the resulting treated material to effect reaction between the said textile material and the said polymerization product, thereby insolublizing the latter.

Vinylchloride plastics as textile aids. Franz Kainer. *Melliand Textilber. 31*, 775-7 (Nov. 1950); *in German.*

Vinyl chloride plastics are valuable textile auxili-

ary products in the form of solutions, emulsions, pastes or oil, by means of which a fabric can be given a water-proof or water-repellent finish, or made difficultly inflammable, or abrasion-resistant. They produce excellent matter effects on rayon. They are further used for impregnating, coating and doubling fabrics, as well as for the production of special cloths.

Water-repellent fibrous structures and process for obtaining same. Kenneth L. Berry (to E. I. duPont de Nemours & Co.) USP 2 532 691, Dec. 5, 1950.

A composition of matter which comprises a colloidal aqueous dispersion of polytetrafluoroethylene containing from 2% to 40% of polytetrafluoroethylene and from 0.1% to 10% by weight of the polytetrafluoroethylene of a salt of the class consisting of ammonium and water-soluble basic amine salts of an N-monoalkyl substituted polymeric amic acid of an interpolymer of a polymerizable organic compound containing an ethylenic double bond as the sole aliphatic carbon-to-carbon unsaturation with a butenedioic acid anhydride, the recurring two non-oxo carbonyl groups in the polymeric amic acid being attached directly to adjacent carbon atoms of the polymeric chain which contains structural units in which the amide nitrogen atom has attached thereto hydrogen and a long-chain monoalkyl substituent of at least seven carbon atoms, the basic amines of the salts being those having an ionization constant value greater than $1x10^{-6}$ when measured at 25° C.

Web feeding of textile materials. Weldon G. Helmus (to Fair Lawn Finishing Co.) USP 2 533 248, Dec. 12, 1950.

In the open web feeding of a web of textile material by way of a downwardly directed below-treating-bath surface created web conveying current, the improvement comprising subjecting a web of textile material to unrestrictive shrinkage with treating liquid while in substantially uniformly supported tension contact with a substantially uniformly supported tension contact with a substantially smooth surface immediately, thereafter immersing the web in treating liquid and substantially tension-relaxing the web therein and conveying the same in substantially tension-relaxed condition and substantially encased in a stream of treating liquid over a downwardly acruating surface into substantially vertical position for gripping contact with a below-treating-bath surface created web conveying current.

"Zeset" for wrinkle resistance. Anon. *Am. Wool Cotton Reptr. 64,* 65 (Dec. 1950).

"Zeset", a new textile finish developed and placed on the market by the duPont Co., is reported to not only make cotton and viscose rayon resistant to wrinkling and shrinking, but to give both fabrics a soft, wool-like finish. It can be applied by any mill possessing efficient padding, drying, heat treating, and washing equipment used in applying thermosetting resins.

TESTING AND MEASUREMENTS G

Cooperation seen bettering synthetic fabric performance. Julius B. Goldberg. *Am. Wool Cotton Reptr. 64,* 13-14, 42 (Dec. 28, 1950).

The current program of the yarn producer fabric manufacturer, converter, dyer and finisher to improve the performance of synthetic fabrics is discussed. Through this program of cooperation it is possible to get serviceable fabrics that are beautiful, washable, dry-cleanable, shrink and crease resistant, durable, and color-fast.

D-13, the men who set the standards. Anon. *Textile World 101,* 106-7, 121 (Jan. 1951).

A description of the organization of Committee D-13 of the American Society of Testing Materials, and of the method by which the technical standards of the industry are established.

Detergency evaluation. I. Wash test methods. Jay C. Harris & Earl L. Brown. *J. of American Oil Chemists' Soc. 27,* 564-70 (Dec. 50).

Soil removal data were developed for five laboratory methods and one practical wash test method, utilizing a single standardized soil test fabric. The degree of correlation between the methods is good considering the variety of machines and procedures used. Better correlation between methods was obtained in hard than in soft water, attributable to the higher solution concentration used in the hard water tests.

Study of yarns and fabrics, and the relation between yarn characteristics and fabrics. Anon. *Annales Textile 3,* 18-27 (Apr. 1950); *in French.*

Tests of nine different yarns of different fiber and preparation, but of the same count, and their effect upon fabric break. Cotton and rayon yarns were used. The influence of twist on fabric resistance is described. Table. (T.I.F.)

TEXTILE MILLS H

Air conditioning in the textile industry. Anon. *Fibres 11,* 403-8, 411 (Nov. 1950).

Discusses air conditioning as related to optimum production and attendant problems. Air conditioning systems used, American views and practices and most suitable methods of achieving evaporative cooling are described in detail.

Apparatus for measuring and controlling moisture content or the like. Wilmer C. Anderson (to Deering Milliken Research Trust) USP 2 535 027, Dec. 26, 1950.

A meter comprising in combination a balancing network including at least two adjustable elements, a condenser for reception of material to be tested between the electrodes thereof connected across one of the elements, a source of alternating potential for the network, a device so connected to the network as to be energized only when the network is out of balance, means for adjusting the elements to restore balance of the network upon unbalance thereof, a computing network having a pair of adjustable elements operatively connected with the last mentioned means so as to be adjusted simultaneously with the first pair of elements, and an indicating device connected to the computing network for indicating the condition thereof.

Application of positioning increased efficiency. Herbert L. Werner. *Am. Wool & Cotton Reporter 65,* 16 (Jan. 4, 1951).

See front section.

Automatic belt dresser. Staff *Textile Industries 114,* 145-6 (Dec. 1950).

As a result of an automatic belt dresser, belts are kept cleaned and dressed without attention while the cards are running. Life of belting is greatly expanded. The device, patented by W. C. Waters, Swift Mfg. Co., Columbus, Ga., requires little maintenance.

Electrical hazards in textile mills. Anon. *Textile Industries 115,* 125 (Jan. 1951).

Photographs showing electrical equipment covered with lint illustrate careless housekeeping that is the cause of many electrical fires in mills. The selection of electrical equipment designed for such conditions is advisable, but with old equipment frequent cleaning and an effort to reduce the amount of lint in the air is the best way to reduce fire hazards.

How rayon grew up in the South. Anon. *Am. Wool Cotton Reptr. 64,* 54-5, 66 (Dec. 14, 1950).

Burlington Mills Corp., one of the largest producers of synthetic fabrics in the world, is discussed as an illustration of the South's textile growth and progress. From its beginning in 1923 with one plant and 200 employees, it has grown until now Burlington Mills has 75 modern plants and employs 32,500 persons.

Noise in textile factories. Anon. *Tex. Mercury & Argus 123,* 849, 851 (Nov. 24, 1950).

Based on information from the Textile Committee of the International Labor Organization, this article outlines methods of noise abatement now being studied in Norway, Sweden, and the United Kingdon.

Practical time studies to assist overseers. Virgil Redden. *Textile Industries 115,* 100-3 (Jan. 1951).

Time studies are useless unless the results have been simplified so that they can be easily used and understood by all persons concerned. Time study results can be used for writing daily schedules and can simplify machine jobs and jobs based on machine production. As an example, the time study procedure for an operation of warp twister creelers and doffers is described. The final result is a simple table showing the number of operatives required to run the job under various production schedules.

Medium voltage distribution switchgear. Anon. *Textile Mfr. 76,* 588-91 (Dec. 1950).

Medium pressure main switchboards in industrial premises should, where possible, be placed in a room or enclosure which is only accessible to responsible persons. Various types of switchboards are discussed, including flat back, sheet steel cubicle, and truck type switchboard, A. C. circuit breakers, medium and low capacity distribution switchboards.

Textile industry continues march South. Anon. *Am. Wool Reptr. 64,* 49, 51, 53 (Dec. 14, 1950).

The post-war industrial growth of the textile industry in the South and particularly in the Southeast, is discussed with examples of many of the expansion projects given. It is interesting to note that most of the actually new textile mills in the South in recent years have been synthetic or woolen mills rather than cotton mills.

Textile machinery perfection. Anon. *Am. Wool Cotton Reptr. 65,* 11-13 (Jan. 4, 1951).

To meet today's requirements textile machines must be highly efficient, produce high quality work, withstand constant vibration, be extremely accurate so that every part will be a perfect fit, etc. At Whitin Machine Works precision engi-

neering and constant quality control are employed to meet these requirements. All the work done in the plant from the time raw material enters until finished work is shipped, is examined and inspected by more than 200 trained inspectors usng the most modern equipment and methods.

Textile mill construction continues in southern states. Anon. *Am. Wool Cotton Reptr. 64,* 13-14, 32-4 (Dec. 14, 1950).

The tremendous number of new mills and additions to mills already in operation in the South are a good indication of the rapid growth of the southern textile industry, particularly in North Carolina. Construction of such plants as the Delta Finishing Company Division of J. P. Stevens Co., near Cheraw, South Carolina, are mentioned to illustrate this expansion.

Textiles retain North Carolina industrial leadership. Paul Kelley. *Am. Wool Cotton Reptr. 64,* 23 (Dec. 14, 1950).

A brief history of the textile industry and its growth in North Carolina is presented.

The nature of water. H. Schmassmann. *Ciba Review 82,* 2975-80 (Oct. 1950).

Water is a compound body, but man has given varying opinions on its properties since ancient times. The chemical composition of water, its chemical impurities and the presence of dissolved substances, the effect of sewage and stream pollution are factors that change the natural state of water and require special efforts of control.

The purification of waste water. W. Schmassman. *Ciba Review 88,* 2986-89 (Nov. 1950).

See front section.

Use of mechanical stokers for industrial boiler houses. R. F. W. Guy. *Textile Mfr. 76,* 593-4, 597 (Dec. 1950).

The increased use of mechanical stokers is almost entirely due to the fact that they are capable of giving immediate financial returns in reducing fuel costs. Savings between 10 and 25% can be achieved. The effect of English use of stokers upon boiler-house working conditions, costs and other factors are described.

Water for trade and industrial uses. W. Schmassmann. *Ciba Review 82,* 2981-84 (Nov. 1950).

The properties of water required for industry vary, but generally hard water is unsuitable due to insoluble sevabic salts or calcium which are formed from soap and the soap waste resulting. Several methods are outlined for water softening,

as well as for the removal of objectionable minerals.

Waters of the earth. H. Schmassmann. *Ciba Review 82,* 2970-3 (Oct. 1950).

The percentage distribution of water over the earth, its constant rising and cyclic precipitation as a result of solar energy penetrating the atmosphere, the contribution of ocean to its circulation over earth, the influence of climate, and the formations of ground water are natural factors that have been interfered with by man's use of water.

Water supply past and present. H. Schmassman. *Ciba Review 82,* 2991-94 (Nov. 1950).

The collection and storage of water is described historically, with methods of modern times contrasted to ancient practices. Water treatment, methods of water detection and sewage disposal are reviewed.

CHEMISTRY AND PHYSICS OF MATERIALS I

Acidic properties of cotton cellulose and derived oxycelluloses. Part VII ion-exchange reactions with basic dyes. G. F. Davidson. *J. Tex. Inst. 41,* T361-380 (Oct. 1950).

The affinities of the cations of a number of basic dyes for the carboxyl groups of acid oxycelluloses were compared by means of measurements of the absorption of dye cations in competition with the sodium ion or with another species of dye cation. Affinities were determined by means of chromatographic investigations of the displacement of dye cations from combinations with an oxycellulose by sodium ions. The basic dyes differ widely in affinity but even the most weakly bound has a much greater affinity than the sodium ion. It was also found that these exchange reactions do not obey the Law of Mass Action.

Application of differential dyeing tests to cotton linters. A. Parisot, B. Hubert & J. Cyrot. *Bull. de l'Institut Textile 22,* 17-25 (Dec. 1950); *in French.*

The differential dyeing test as used for determining the ripeness of cottons, can furnish data as to the industrial value of linters intended for the manufacture of viscose.

1. If the linters become grey, the viscose solution obtained will be very useless to make a semi-industrial test.
2. If the tint obtained is a true green, it can be assumed that it will be easy to filter the viscose,

and a semi-industrial test can then be made in order to reach a definite conclusion.

Alkaline oxidation of cellulose. I. J. F. Haskins & M. J. Hogsed. *J. of Organic Chemistry 15,* 1264-74 (Nov. 1950).

An investigation of the mechanism of alkaline oxidation of celulose by an examination of the fragments obtained by hydrolysis of a partially oxidized cellulose. The oxidizing agent used was H_2O_2 and an attempt was made to approximate the conditions of the process of "aging" of alkali cellulose as in the manufacture of viscose. The influence of the nature of the oxidizing agent is discussed and the experimental procedure outlined.

Alkaline oxidation of cellulose. II. J. F. Haskins & M. J. Hogsed. *J. of Organic Chemistry 15,* 1275-77 (Nov. 1950).

A chromatographic method for the separation of acetylated carbohydrate acids and derivatives has been developed. The order of adsorption, on silicic acid, of various acetylated carbohydrate derivatives has been determined to be amides phenyl hydrazides acids lactones nitriles.

Copolymers of styrene and chloranil. J. W. Breitenbach & A. J. Renner. *Can. J. of Research 28,* 507-13 (Aug. 1950).

The copolymerization of styrene and chloranil in the presence of benzoyl peroxide is described. The molecular weights of benzoyl peroxide is described. The molecular weights of the copolymers were determined by osmotic pressure measurements and found to be between 9,000 and 30,000 for the different fractions; their chlorine content is between 37 and 38.2%. The copolymerization occurs with the carbonyl groups of the chloranil, transforming it into a derivative of tetrachlorohydroquinone. This reaction has been verified by degradation of the copolymers with hydrogen bromide.

Degradation of cellulose in alkali. J. Cyrot. *Bull. de l'Institut Textile 22,* 25-43 (Dec. 1950); *in French.*

Cellulose degradation in cuporiethylenediamine solution has been studied. The oxydation is function of time and surface of contact is not negligible in presence of air and of oxygen.
The oxygen retained in the fiber must be expelled should accurated measurement of degree of polymerization be made with native cellulose.
The degradation was followed by determination of degree of polymerization. Schulz's empirical formula was used.

Degree of polymerization and chain transfer in methyl methacrylate. S. Basu, J. N. Sen. & S. R. Palit. *Proc. of Royal Soc. 202,* 485-98 (Aug. 22, 1950).

The chain-transfer constants of twenty-six solvents in the polymerization of methyl methacrylate have been calculated, using Mayo's equation for chain-transfer reaction, from the measured values of degree of polymerization of the product formed in these solvents at different concentrations at 80° C. The increase in transfer constants in hydrocarbons, alcohols, ketones, acids and ester may be effectively accounted for by the increased polarization of the C-H bond by adjacent electron-attracting groups. Further, it is shown that simple chain transfer reactions with solvents cannot fully account for all the observed discrepancies in the kinetic measurements in solution.

Effect of structure of reactivity. III. Aminolysis of esters with primary amines. Ed. McC. Arnett, John G. Miller & Allan R. Day. *J. Amer. Chem. Soc. 72,* 5635-8 (Dec. 1950).

The rates of reaction of a series of primary aliphatic amines with methyl acetate, in the presence of ethylene glycol, have been determined. The order of activity for the series was found. These results are discussed from the standpoints of basicities and steric bulks of the amines.

Experimental study of copolymerization. T. Alfrey, Jr., J. Bohrer, H. Haas & C. Lewis. *J. of Polymer Science 5,* 719-26 (Dec. 1950).

The copolymerization behavior monomer pairs is investigated and the reactivity ratios of the various systems are given in tabular form.

Heterogeneous system for polymerization of vinyl chloride. J. B. O'Hara & C. F. Prutton. *J. of Polymer Science. 5,* 673-86 (Dec. 1950).

A new method of polymerization in which monomers are bubbled in the form of a gas in a fine state of subdivision through a liquid essentially incapable of dissolving the monomer, with a polymerization catalyst being contained in the liquid. Data are included on the effect of monomer rate, catalyst concentration, temperature and pressure variations on the rate of polymerization.

Intramolecular reaction in polycondensations. I. The theory of linear systems. Homer Jacobson & Walter H. Stockmayer. *J. of Chem. Physics 18,* 1600-06 (Dec. 1950).

For three types of linear polycondensing systems, equilibrium molecular size distributions, including

rings as allowable species, are derived. Average molecular weights and amounts of ring and chain fractions are calculated therefrom. The fractions of rings are shown to increase with dilution, and with molecular weight. It is shown that beyond a critical dilution it is sometimes possible to obtain 100% yield of rings by driving the condensation to completion. Detailed calculations are made for two important cases corresponding to condensations of the decamethylene glycol-adipic acid type: (1) for equimolar amounts of the two monomers, and (2) unequal amounts with one monomer type completely reacted.

Intramolecular reaction in polycondensations. II. Ring-chain equilibrium in polydecamethylene adipate. Homer Jacobson, Charles O. Beckman & Walter H. Stockmayer. *J. of Chem. Physics 18,* 1607-12 (Dec. 1950).

Decamethylene adipate polymers prepared in the absence of solvent undergo a reversible decrease in solution viscosity when heated for long times in chlorobenzene. This phenomenon is shown to be due to ester interchange reactions which establish equilibrium between ring and chain molecules. Quantitative agreement with the equilibrium theory of the previous paper is obtained if the effective length of a chain link is taken as 4.5=0.2A, which is of the order of magnitude to be expected from hindered rotation and steric effects. Measurements of ring-chain equilibrium thus appear to offer a useful method for characterizing the stiffness of relatively short and flexible chains.

Molecular configuration and thermodynamic parameters from intrinsic viscosities. Anon. *J. of Polymer Science 5,* 745-47 (Dec. 1950).

The procedures are outlined that afford a simple and effective means for the investigation of both polymer chain configuration and the thermodynamics of polymer-solvent interaction. With respect to the former, the intrinsic viscosity procedure offers the advantage of greater sensitivity than other methods since it depends on the volume occupied by the polymer chain rather than on its linear dimension.

Notes on colloids in textile processing and coloring. Anon. *Textile Mfr. 76,* 612-14, (Dec. 1950).

Colloidal theory as applied to various stages of processing and coloring was outlined as follows: (1) definitions of colloids; (2) gelatine in sizing and dyeing; (3) nature and influence of colloidal properties in various aspects of processing and

scouring; (4) dispersion and protective action in vat dyeing; (5) use of colloids in azoic dyeing procedures.

Oxidation of wool by the action of soda. M. Van Overbake, L. Lefebvre, & L. Raux. *Bull de l'Institut Textile 22,* 53-60 (Dec. 1950); *in French.*

Deterioration of wool by oxidation can be measured by the loss of such wool under the action of soda. The experimental conditions of this measurement have been laid down on the basis of a systematic study of the various factors influencing this loss.

Polyalkylene glycol synthetic lubricants. W. H. Millett. *Ind. Eng. Chemistry 42,* 2436-41 (Dec. 1950).

Recent developments in polyalkylene glycol synthetics make possible a series of greases incorporating the desirable features of the base liquids, and a new series of fluids having viscosity indexes from 160 to 180. Excellent wear resistance is reported. The fluids are marketed under the trademark Ucon, and a motor oil product of the same derivation is marketed as Prestone. Eighteen references, tables of properties and wear tests.

Polymeric additives for synthetic ester lubricants. F. J. Glavis. *Ind. Eng. Chemistry 42,* 2441-46 (Dec. 1950).

Viscosity increase and viscosity index improvement are demonstrated for blends of acrylic polymers and polyesters of high molecular weight in various ester types. This study of ester lubricants shows that improvements in both properties is obtained where the polymeric additive is soluble in the particular ester involved. Twenty five references.

Potentiometric titration of viscose. P. Herrent and G. Jnoff. *J. Polymer Science 5,* 727-32 (Dec. 1950).

By combining the gasometric and the iodometric methods of analyses with the potentiometric titration method the concentration of each of the constituent elements of viscose was determined as a function of the ripening period of the viscose.

Preparation of sodium carboxymethylcellulose. R. R. McLaughlin & J. H. E. Herbst. *Can. J. of Research 28B,* 731-36 (1950).

The preparation of sodium carboxymethyl-cellulose from cellulose, sodium hydroxide, and sodium chloro-acetate in the presence of water was investigated. The effects of temperature, excess of

sodium hydroxide, ratio of water to cellulose, time of mixing, and manner of addition of the reagents were studied. The highest degree of substitution attained was 2.8.

Some new concepts in the structure of cellulose and its derivatives. F. Happey. *J. Tex. Inst. 41*, T381-403 (Oct. 1950).

Outlines the results of work carried out on the structure of cellulose and its derivatives. Presents experimental data which serve as the basis for the main lines of arguments concerning the new concepts. The principal points presented are as follows: (1) To advance a modified theory of nitration. (2) To rationalize the approach to the problem of acetylation and saponification. (3) To show that crystalline secondary acetate can be made. (4) To use the derived theory of isomorphic replacements to explain the possibility of nitrocellulose having a two phase structure in the crystalline part.

The accessibility of cellulose. Harold Tarkow. *Tappi 33*, 595-99 (Dec. 1950).

A discussion of various methods for arriving at a value of accessibility of cellulose and a description in detail of new method based on the ability of formic acid to react only with the primary hydroxyl group in the anhydroglucose residue.

The heat of wetting of dry cellulose in water. M. Wahba & S. Nashed. *Nature 166*, 998 (Dec. 9, 1950).

The heat of wetting of dry standard cellulose in water was measured at temperatures between 0° C. and 40° C. and was shown to decrease with the rise of temperature. The variation of the change of heat content with temperature represents the difference between the heat capacity of the dry cellulose-water system before and after wetting. The increase in the heat capacity of the system resulting from wetting may be due to some change in the H_2O on being absorbed or in the cellulose itself, on swelling, or due to change in both. It is concluded that the absorbed water has a higher specific heat than ordinary polymerization. The swelling process of cellulose is analogous to depolymerization, therefore swollen cellulose would also have a higher specific heat than that of dry cellulose.

Treating a tow of filaments or threads in a limited space. J. F. Keegin. *J. Soc. of Dyers and Col. 66*, 593 (Nov. 1950).

A continuous tow of filaments is treated in absence of tension with a liquid of sp. gr.>that of the tow. The tow is carried by the liquid through

a tube whose end portion progressively increases in width and leads to another tube which is wider than the narrowest portion of the first tube. The upper surface of this second tube is at a lower level than the overflow level of the liquid. The speed of the liquid through the tubes and the inclination upwards in the direction of flow of the liquid of the upper surface of the second tube are such that the tow collects against this upper surface and is retained there long enough for the liquid to produce the effect desired.

Ultrasonic degradation of polymers. H. W. Melville & A. J. R. Murray. *Trans. of Faraday Soc. 46*, 996-1009 (Nov. 1950).

The ultrasonic degradation of dilute solutions of polymethyl methacrylate and polystyrene have been investigated under conditions in which no cavitation occurs. Degradation is much slower than when cavitation is allowed to take place. Osmotic pressure determinations of molecular weight show that true fission of polymers occur. Attempts have been made to find whether fission produces radicals or molecules by carrying out experiments in monomers in presence of iodine. The evidence shows that degradation into molecules seems to be preferred. Monomeric styrene is shown on the other hand to be induced to polymerize by ultrasonic radiation.

TEXTILE EDUCATION AND RESEARCH J

AATCC technical papers point up advances in technology. Anon. *Textile World 100*, 128-31, 133, 135, 137 (Dec. 1950).

The following technical papers presented at the Portsmouth meeting of the AATCC are digested briefly: "Caustic-Silicate Control Ratio Developed by Mill", K. D. Ballow, J. J. Roarke & G. M. Gantz; "Thermocouple Recommended for J-Boxes and Steamers", C. W. Bowden, Jr., and Drew B. Daubert; "Larger Cores Preferred in Package Dyeing", Ernest L. Caswell; "Afterglow Reduced with Sodium Silicate", A. E. Jacobsen, W. F. Sullivan, & I. M. Panik; "Moth-Proofing Detergent Combination Evolved", H. C. Borghetty, W. N. Pardey & O. L. Sherburne; "Wool Dyes Stripped Without Chemical Damage", E. A. Leonard & L. Beck; "Anthraquinone Vats Applicable to Wool", Arthur E. Weber; "Basic Variations Required in Printing Synthetics", Arthur F. McLean; "Urea Can Be Used to Stop Fabric Odor", Linton A. Fluck; "Low-Load Abrasion Tests Aid Resin-Treatment Evaluation", D. D. Gagliardi, Angela Lempka and A. C. Nuessle; "Static Elec-

tricity is measured Positively", Mason Mayek and F. C. Chromey; "Newer Fatty Intermediates Improve Finishing Compounds", L. J. Armstrong; "Integration of Fabric Finishes Sought", J. Fred Oesterling; "Water Pollution—An Industry Responsibility", Lyman Cox.

Canadian Textile Seminar discusses modern methods. Anon. *Textile World 100,* 139, 141, 143, 145, 147, 149 (Dec. 1950).

Complete papers of the Canadian Seminar are available in bound form ($5.00 Canadian) from the Secretary, Textile Technical Federation, Box 1000, Cornwall, Ontario, Canada. The following papers are briefly digested: "Nylon Processing Easy on Worsted and Woolen Machinery", Harold Ashton; "Wool-Processing Variables Can be Controlled", W. E. Prentice; "Neps in Wool Tops Not Hard to Figure", Watson J. Wood; "A Varga Breast Can Improve Your Carding", Andre Varga; "Good Wool Oils Must be Versatile", Fred E. Brown; "Bradford Drawing May Become Obsolete", Francois E. Cleyn; "Fiber Characteristics Influence Spinning Quality", E. A. W. Boyce; "Analyze Your Sizing Problems Before Attacking Them", James H. White; "Size-Solution Viscosity Should Vary with the Fiber", Fred G. LaPiana; "F-F Knitter Training Program Is a Long-Term Investment", C. G. Newton; "Argyle Socks Producible On a Commercial Basis", J. H. Blore; "More Production Possible in Rayon Cake Dyeing", C. C. Wilcock; "You Can Save Soda In Continuous Neutralizing", Werner von Bergen; "Barber-Colman Cheese Dyeing Saves Ball Warping and Beaming", T. H. Jackson; "Pre-Shrinking Wool-Nylon Is Possible Without Tendering", G. T. Douglas; "Centrifugal Spinning Is Even and Economical", Harold V. Farnsworth; "Processing Steam Quality Should be Closely Controlled", G. R. Connor; "Make Way for the Micron", Squire Blackshaw.

Clemson results of expanding research program. Hugh M. Brown. *Am. Wool Cotton Reptr. 64,* 75, 82 (Dec. 1950).

Extensive research work at Clemson School of Textiles has been made possible by the enlargement of the school and the addition of the newest equipment. A new hand tensionmeter for yarn and a new fiber-tensile tester have been developed; studies have been made on measuring the fineness of cotton by means of air flow on the identification of textile fibers by x-ray, on stabilization of warp tension, etc. Future expansion of the school is planned.

Cotton industry research. A Shirley Institute progress report. Anon. *Textile Mercury & Argus 123,* 820-21 (Nov. 17, 1950).

Britain may lag behind America in production techniques, but in the textile research field America acknowledges Britain's superiority, according to Dr. F. C. Toy, Director of Research, The Shirley Institute, at the Institute's annual meeting. Recent research interests of the Institute: a new sizing process; attempts to accelerate the normal hypochlorite bleaching process; study of finishing details such as drying, the flow of printing paste, mangling and calendaring; personnel and mill employee welfare, such as means to improve working conditions.

However, the chairman of the meeting, N. G. McCullough, said that Britain lagged in the matter of providing the mills with trained men to act as "transformers" and to interpret "the knowledge sent out by the Shirley Institute in terms of the Mills' own special problems", and that unless trained technicians were provided, "valuable knowledge will remain unused."

Crazing linear high polymers. C. C. Hsiao & J. A. Sauer. *J. of Applied Physics 21,* 1071-83 (Nov. 1950).

The effect of various variables, such as type of stress, stress magnitude, duration of stressing, and environment on the initiation and development of crazing in linear polymers is discussed. The basic nature of crazing is investigated in some detail for polystyrene specimens by means of the light microscope, the electron microscope and the x-ray spectrometer. The results of these observations and their bearing on the fundamental group structure of polystyrene molecules is presented. The relationship between crazing and orientation is discussed, as well as the effect of both of these factors on the mechanical properties. The experimental results are compared, whereever possible, with the previously reported data of other investigators. A short discussion is given of a theory of crazing from the point of view of the molecular structure of the structure of the material.

Determining high molecular weights. B. A. Brice, M. Halwer & R. Speiser. *J. Optical Soc. of America 40,* 768-778 (Nov. 1950).

A photoelectric photometer designed for the measurement of absolute turbidity, dissymmetry and depolarization of dilute solutions of high molecular weight materials, and hence determination of their molecular weights, is described.

Electron-microscopic observations of fiber sur-

faces. W. Kling & H. Mahl. *Melliand Textilber. 31,* 407-13 (June 1950).

In connection with an extensive investigation on detergency it was decided to make observations of the surface of fibers using the electron microscope. This paper, which is illustrated by many photomicrographs, describes the preliminary results obtained with clean fibers of cotton, flax, wool, silk, viscose and acetate rayons, and nylon. With cotton the fibrillae of the secondary wall were visible through the cuticle and primary wall. The presence of a thin outer skin, which fairly readily flaked off, was observed on nylon.

Enzymic hydrolysis of carboxymethyl cellulose. H. S. Levinson & E. T. Reese. *J. Gen. Physiol. 33,* 601-28 (1950).

Changes in the degree of polymerization of the substrate may be followed within certain limits of molecular size. Experiments carried out on carboxy-methyl cellulose (CMC) indicate that a random splitting of CMC occurs during enzymic hydrolysis, with a decrease in intrinsic viscosity and an increase in reducing sugars. An alternate explanation to the cellulose-cellobiose-glucose theory of cellulose hydrolysis is postulated.

Evolution of textile machinery design. H. Marsden. *Brit. Rayon & Silk J. 27,* 74-5, 77 (Nov. 1950).

Technical research is used in many ways to produce better machines, improved methods, and reduced cost of mill operation. Some of the responsibilities that textile machinery manufacturers owe to the textile mills are: (1) continuous improvement of existing machines; (2) continuous improvement of standard machines in relation to parallel developments in other industries or other branches of the textile industry; (3) development of new machines to meet new needs; (4) fundamental research on basic machine design; (5) development of new machines from original thought and ideas involving new conception of textile manufacturing.

Isotope use only in lab held best. H. E. Millson. Isadore Barmash. *Daily News Record 241,* 37 (Dec. 12, 1950).

Any process using radioactive isotopes which remain in the fabric to any considerable degree would probably be harmful to the wearer, particularly if they emitted hard beta or gamma rays, Henry E. Millson, assistant director of application research, American Cyanamid Co., Calco Chemical division, declared at the monthly meeting of the Philadelphia Section, American Assoc.

of Textile Chemists & Colorists.

Apparel treated by such a process would be considerably harmful to the wearer because of bombardment of the radioactive waves, he said. "I would recommend," he added, "radioactive isotopes for research or investigational work rather than for practical dyehouse use."

Devoting most of his practical examples to research done in his firm's laboratories, Mr. Millson displayed a cone of cotton which, through the use of a field of radio waves, was fully dried in 4 minutes. It was necessary for 75 cubic centimeters of water to be evaporated each minute in order for the cone to be dry within 4 minutes. The use of this method allowed a uniform drying and eliminated migration and other conditions found in other methods. "While it is more costly than other methods," he commented, "we expect that this factor will be overcome through the development of a continuous method, such as putting cones on a belt."

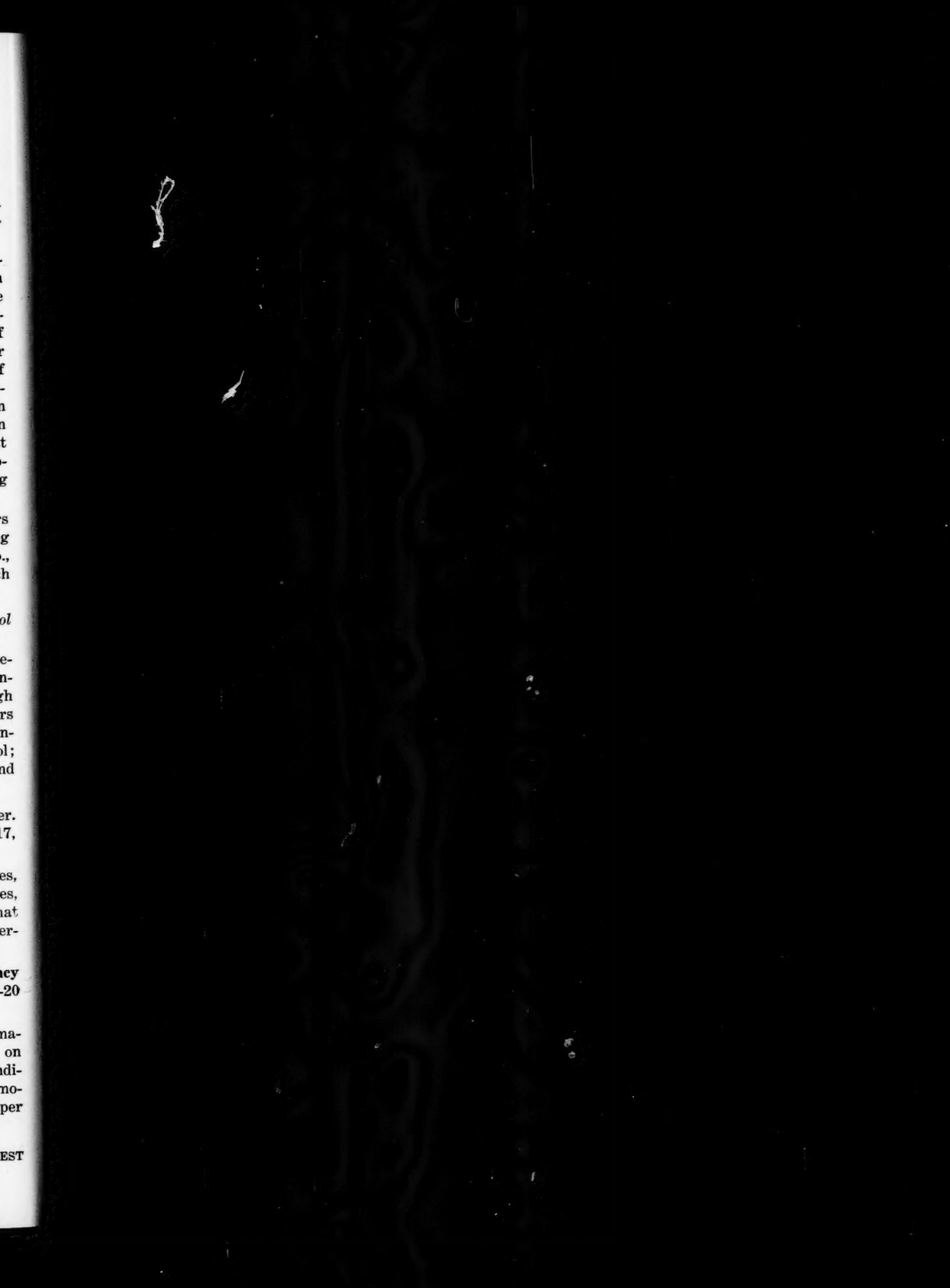
By analyzing the contents of natural phosphors and reproducing them synthetically, interesting results may be achieved. Canadian Radium Corp., New York, has made synthetic phosphors which have been successful in activating pigments.

Steady gains in textile research. Anon. *Am. Wool Cotton Reptr. 64,* 13-14 (Nov. 30, 1950).

Excerpts of talks and papers presented at the recent annual meeting of the Textile Research Institute include: aspects of yarn structure; high temperature dyeing; dyeing acrylonitrile fibers through the use of a copper technique; the spinning value of raw cotton; the plasticity of wool; the strength and weakness of cotton fibers; and fiber crimping.

Technological trends in textiles. W. H. Slater. *Textile Weekly 46,* 1310, 1312, 1314 (Nov. 17, 1950).

General review of British technological advances, citing some American methods and machines, but containing editorializing on the theme that Britain must get lower-cost operation like American manufacturers.

Textile training facilities ready for emergency use. Anon. *Am. Wool Cotton Reptr. 64,* 17-20 (Nov. 23, 1950).

Added emphasis is being placed by mills, machinery manufacturers, and textile institutes on the need for instruction that will fit the individual for positions connected with textile mobilization. Educational programs at Draper Corporation and Dan River Mills are cited.